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CANTERBURY BELLS.



APRIL, 1887.

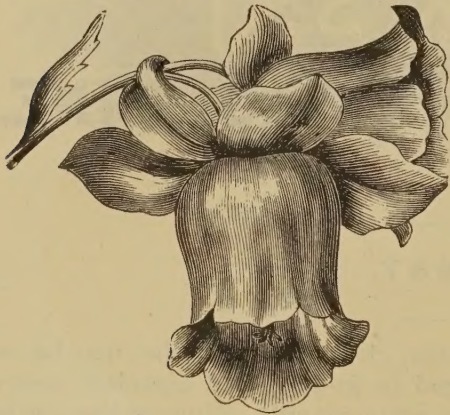
GARDENING FOR PLEASURE, health and a knowledge of the vegetable world, are the highest inducements that can be set before one to lead to the study and practice of horticulture. The commercial gardener and fruit grower has all the difficulties common to other pursuits to contend with besides the many perplexing ones peculiar to his own. The profits of this industry, in its various branches, have been persistently set forth in a false and alluring light by many journals, and especially by traveling salesmen interested in the sale of various horticultural products. We would not attribute any intentional dishonesty to those who have thus bolstered the commercial horticultural movement for years, but hard facts, as they become known, show the error of their position. For one without experience and training to take up any branch of commercial horticulture is almost sure to be a courting of failure. On the other hand, one will seldom or never be disappointed who turns to the garden for recreation, or who seeks there the building up of over-strained nerves, or who would follow out to discovery some of the innumerable secrets of the vegetable world that are to be found by the earnest and patient observer. It is the place for at least an hour or two every day for women, as a change from household duties, for professional men, editors, mer-

chants, clerks, and all who may be engaged in in-door, and especially sedentary, employments. More or less garden work should be engaged in every day and by every member of the family wherever it is possible. Some are so situated that they cannot have this resource. We pity them for this deprivation. But there are great numbers of families that now have the opportunity to engage actively in garden work, who entirely neglect it; they have no interest in it. The spirit of amateur gardening needs to be fostered. In every community those who have become interested in gardening pursuits should seek to imbue others with their enthusiasm. Amateur gardeners should more generally be associated with the horticultural societies, and should mould these societies to their own wants rather than to allow them to be so much occupied with berry-growers, grape-growers, orchardists and nurserymen. All of these have their place in the horticultural world, but we are greatly mistaken in our estimate of them if they would not willingly see a great portion of the time of horticultural meetings taken up by amateurs engaged in gardening merely for the love of it, and without hope of pecuniary gain. There are numberless families and communities the members of which would be far healthier and happier if thoroughly interested in garden work.

CANTERBURY BELLS.

Among garden flowers there is none more strikingly beautiful than the Canterbury Bells, which are so well represented in our colored plate in this number. These flowers combine a wonderful beauty of form with pure, bright colors.

The Canterbury Bell, or *Campanula Medium*, is an old garden plant, but is not as often seen as it deserves, probably because it is a biennial. The plants grow to a height of three feet and more, form-



CAMPANULA MEDIUM, VAR. CALYCANTHEMA.

ing a handsome stocky bush. The flowers are produced in great profusion in June and July, but the heat of midsummer checks their blooming. If the flowers are picked off as they fade and not allowed to produce seeds, the strength of the plant will be sustained, and as the heat declines at the end of summer, another crop of flowers will be produced.

In the gardens of our grandmothers these flowers were only white and blue, but within recent years the rose-colored one was brought out by VILMORIN, of France, and many new shades have also been introduced. Another variation is a doubling process, two other bells being produced within the outer one, and the inner one being cramped fills the whole cavity, giving it a solid appearance. The double form is not as handsome as the single one, but the flowers will last longer in a cut state. A variety has also been produced, called *Calycanthemum* — this term meaning flowery calyx. Instead of the points of the calyx being green, as those in the colored plate, they are of the same color as the bell, and very much enlarged, forming a very handsome frill some three inches in diameter about the base of the bell. This variety is particu-

larly beautiful and interesting. As the plants bloom only the second year, in order to keep up a supply of them it is necessary to sow seeds every spring. April and May are good months to start them. The seed is fine, and it is safer to sow it in a box or pan in the house or cold-frame, as a greater number of plants would thus be secured, but it can also be sown in a warm spot in the open ground in fine soil. When the plants are strong enough to move well they can be transplanted into a bed of fine rich soil, setting them about ten inches apart. Here they can grow for the summer with only the care necessary to keep them free from weeds. By the first of September the plants should be lifted with a ball of soil and set where they are to bloom the following year. This operation should not be delayed, as all the time until frost comes will be needed for the plants to become established in their new quarters. When it is convenient the plants may be transferred directly from the seed-bed to their blooming quarters. They can be used in mixed beds, but appear to best advantage when planted in masses; they also make a fine appearance when growing on the border of a shrubbery. When freezing weather sets in the plants should have the protection of leaves or coarse litter for the winter.

Campanula Medium is a native of different localities in the middle parts of Europe, where it is found usually on the borders of woods. Its common name is evidently derived from Canterbury, in England, where, long since, it received considerable attention in gardens; in the same manner it has also acquired the name of Coventry Bell. RAMBROT DODOENS, usually mentioned as DODONÆUS, a Dutch botanist and physician of the 16th century, gave this plant the name of *Medium*, but the significance of the word is somewhat obscure. LINNÆUS, in his great work of classifying plants, when he associated it with the *Campanulas*, employed this old term as a specific name. In view of the fact that in its natural state the flowers are either blue or white, it is possible that the name *Medium* was given to indicate the light and blue of airy space, as space is one of the derivative meanings of the word.

EARLY POTATOES.

Among the earliest varieties of Potatoes that have proved generably acceptable none stand higher in public esteem than the Early Ohio, Beauty of Hebron and Boston Market, and they have been widely disseminated; they are largely grown both in private and in market gardens. The value of an early Potato is so

for the private garden should be selected as the principal very early sort. Beauty of Hebron and Boston Market, which are a little later and give an abundant yield, are both excellent varieties and are highly prized by market growers as well as by private gardeners. Large quantities of these kinds are planted; as they are both

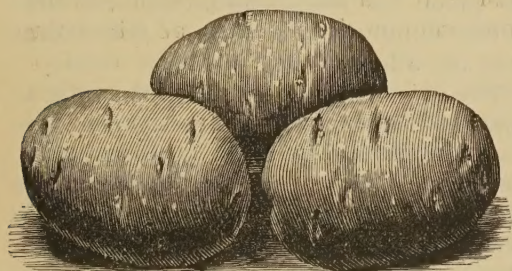


OHIO JUNIOR.

great that it is always desirable to find one a little earlier than any grown. To meet this demand we sent out, a few years since, a variety called Vick's Extra Early, it being the earliest Potato known, and continues so to the present time. While this variety excels in earliness, and has every desirable quality for the table, its yield is small compared with those previously mentioned, and cannot, there-

good keepers they can be employed for the main crop. The loss by rot when it prevails is always much less in these early varieties than in the later ones.

On account of its extra earliness and productiveness, together with other good qualities, the Early Ohio has become a great favorite. It is earlier than the Early Rose and yields better, is like it in color, and is of good quality. A few years since we sowed a quantity of Potato seeds taken at random from different varieties, and one of the seedlings of their produce is what has been sent out as the Ohio Junior. It was so called because of its great similarity to the Early Ohio. The general appearance both of the plant and the tuber is like the Early Ohio; it is equally productive, of the same good quality, and matures in the same time; the eye sare small and slightly imbedded; it is a long keeper. As the varieties of Potatoes are known to deteriorate by continued propagation, and seedlings have superior constitutional vigor, we have thought it due to the public to put this variety, so recently produced from seeds, into the market,

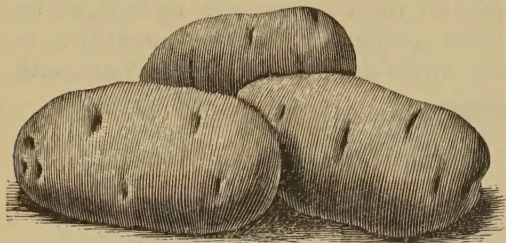


EARLY OHIO.

fore, be employed by the market grower. It is desirable in private gardens in small quantities, to furnish the table at the first of the season and before other varieties have matured.

The Early Gem is one of the most valuable of the quick maturing kinds, and

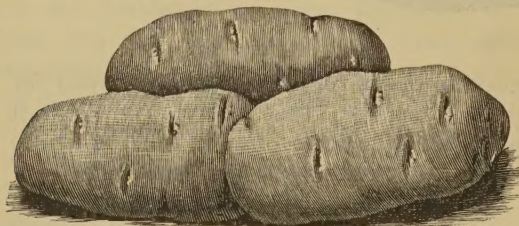
thereby hoping to continue for many years a variety combining the good qualities that have made the Early Ohio so deservedly popular. The engraving here presented of Ohio Junior represents a tuber of average size; full grown specimens are at least a quarter larger. The



EARLY GEM.

Early Ohio, under favorable conditions, can be dug in ten weeks from the time of planting; if got in by middle of April they may be lifted the latter part of June, with suitable weather and cultivation.

The Potato is grown so universally, and all that relates to its culture is so well understood in every neighborhood, there is little necessity of minute directions. It is raised in a great variety of ways, to most of which it accommodates



BOSTON MARKET.

itself and gives a profitable yield. But there are a few points to be observed in order to raise the best crop. The most suitable soil is a sandy loam, naturally well drained; but the Potato can be raised on a great variety of soils if well prepared and manured; a piece of low, moist soil is quite unsuitable for it. A piece of warm, dry pasture land broken up and cropped the year previous is a very desirable spot for this crop. Deep plowing and sufficient cultivating and harrowing to make the soil fine and smooth are essential. If possible, the

land should be plowed in the fall and left rough during winter. Plow again in spring just before planting. A large crop can only be raised on rich soil, and the best manure is well rotted stable dung. This should be plowed in at the last plowing. Excellent results have also been obtained by the use of some brands of commercial fertilizers specially prepared for this use. For the earliest crop market gardeners make a practice of cutting the tubers into sets of one or two eyes, and sprouting them in a hot-bed before planting. This course undoubtedly gives a few days advantage. Whether to cut or to plant whole tubers was for many years a question in dispute; the whole controversy culminated a few years since

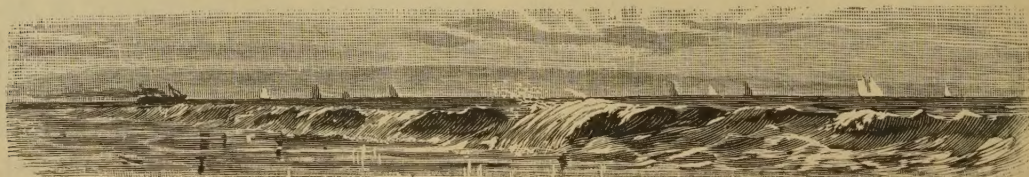


BEAUTY OF HEBRON.

by the advocacy, by some of the most practical cultivators, of the method of cutting the tubers to pieces with single eyes; after giving this method a fair trial it has been generally abandoned, and now pieces with two eyes on each are used, or the Potatoes are cut into about four parts—a heavy soil requiring a greater number of eyes than a sandy one.

Absolutely clean cultivation from the start should be given; the Potato field is no place for weeds, and they will certainly diminish the crop to the extent they are allowed.

The practice of earthing up the hills or rows in the last stages of cultivation is now condemned by many as undesirable, turning off, as it does, the rain that falls about the plants. If the land has been prepared deep, and the sets placed down about six inches below the surface, the hilling is unnecessary, to say the least



THE SUMACS.

The Sumacs belong to the Cashew family, natural order Anacardiaceæ; and the genus *Rhus* is the only representative of that family in the United States. Tropical countries claim the greater number of species, and members of the family produce the Cashew and Pistachio nuts, Mastic and the Mango.

The leaves of the Sumacs are largely used in tanning and dyeing. The Sumac of commerce was *Rhus Coriaria*, a species similar to our Staghorn Sumac, and cultivated in Sicily for its leaves, but it is found that our native species are equally as valuable, and the collecting and preparation of the leaves constitute an important

not under cultivation; of the others, two are poisonous to the touch. *R. typhna*, *R. glabra*, *R. copallina* and *R. aromatica* are more common, and should be used more extensively in ornamental planting.

They are not well suited for small and finished places, as they are liable to throw up suckers, especially in a good soil, and are rather coarse when bare of leaves, but they will grow on the poorest soil and form very effective groups, covered in summer, as they are, with a rich tropical foliage that turns so brilliantly in autumn to shades of purple, crimson

and yellow, as to almost dazzle the eyes; and in winter the brownish and gray branches are terminated by conspicuous cones and crimson fruits, that are retained throughout the season.

The Staghorn Sumac is so called from the young growth being covered with a dense velvety brown hair, like the

newly grown horns of the stag. It is the largest of our native Sumacs, sometimes attaining a height of thirty feet and a diameter of a foot. We see it growing in groups and masses along roadsides, in pastures and among young Birch growths. The foliage is so luxuriant that the branches are hidden from sight, especially on a new and vigorous growth, and in ornamental grounds such a growth should always be kept up by occasional severe pruning. This, and the Smooth Sumach, *R. glabra*, are among the earliest of our native shrubs to color in the autumn, and they will retain their



RHUS GLABRA.

industry in the South, where the leaf-covered branches are cut when fully mature, the leaves beaten off with sticks and dried, then ground and bottled to prepare them for commercial purposes.

Japan wax and Japan lacquer are made from species of Sumac, the latter from *Rhus vermicifera*, which closely resembles our Poison Sumac, *R. venenata*, which also has a resinous juice hardening on exposure to air; it is also a varnish, and may be as valuable in the arts as the Japan lacquer, made from *R. vernicifera*.

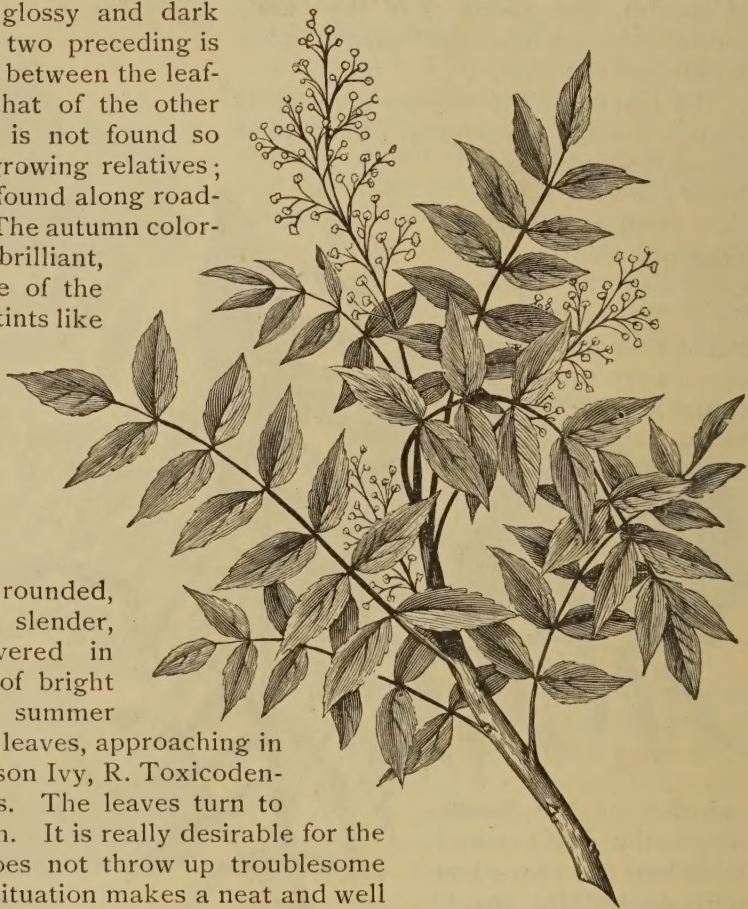
The Staghorn Sumac is the only species that attains sufficient size for industrial use; the wood is beautifully grained and takes a high polish.

We have in the United States about twelve species of *Rhus*, half of these are western and southern, little known and

foliage with its brilliant colors for quite a long season. The Smooth Sumac grows from three to twelve feet in height, and is similar to *R. typhna* in appearance, the new growth, however, is covered with a whitish bloom that easily rubs off, leaving a smooth and glossy surface. There is in cultivation a cut-leaf variety of this species, the Fern-leaf Sumac. It has a very graceful and finely cut leaf, and makes a pleasing addition to a group of shrubs.

The Dwarf, or Mountain Sumac, *R. copallina*, will grow from one to six feet in height; the foliage is glossy and dark green, while that of the two preceding is a dull green; the stem between the leaflets is winged, while that of the other species is smooth. It is not found so common as its large growing relatives; occasional clumps are found along roadsides and in pastures. The autumn colorings are exceedingly brilliant, the gloss on the surface of the leaves bringing out the tints like a coat of varnish. This is one of the prettiest of the genus.

The Fragrant Sumac, *R. aromatica*, is quite distinct from the other varieties named, both in habit, flowers and foliage. It forms a rounded, spreading shrub with slender, flexible branches, covered in early spring with tufts of bright yellow flowers, and in summer with three three-parted leaves, approaching in outline those of the Poison Ivy, *R. Toxicodendron*, but not poisonous. The leaves turn to a brilliant hue in autumn. It is really desirable for the lawn or border, as it does not throw up troublesome offsets, and in an open situation makes a neat and well clothed shrub.



RHUS VENENATA.

On a barren field or ledgy hillside the Sumacs may be planted in groups, using the taller-growing varieties for the center or background and finishing the edges with the low-growing forms last named. The plants may be dug from the fields and planted in the desired locality. They may die down the first year, more or less, but will be quite sure to sprout again from the root.

A single plant of the Staghorn Sumac is often very effective in a group of shrubs, where its tropical foliage will make a fine contrast with the finer sprays in the mass.

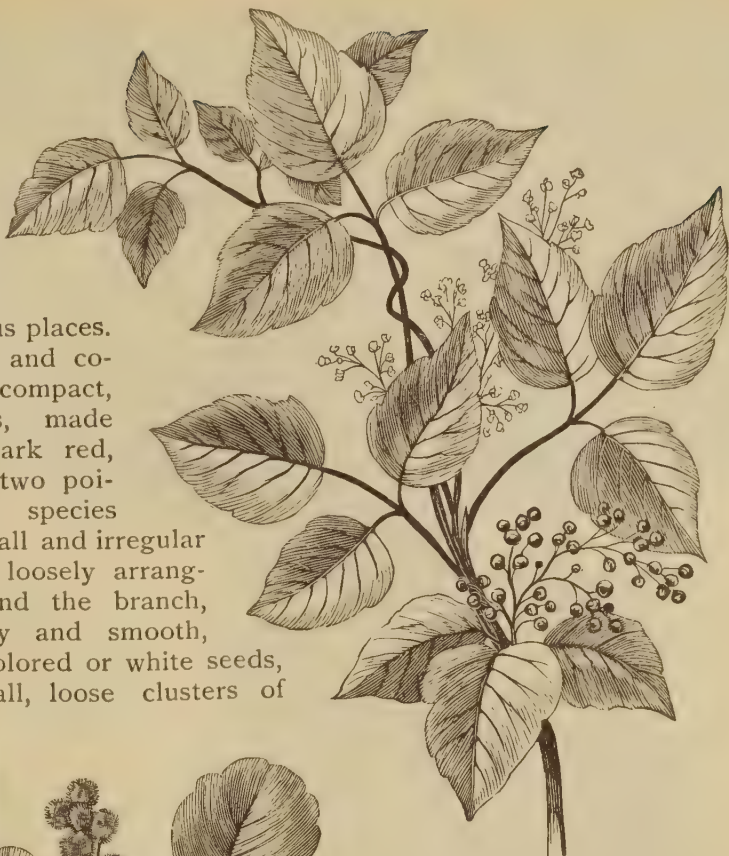
The Smoke Tree, or Venetian Sumac, so often seen in gardens, is a *Rhus*, a native of Southern Europe. We have also, in Alabama, a native, very similar in appearance, *R. cotinoides*, but not yet in cultivation.

Rhus Osbeckii, from Northern China, is rapid growing, and forms a broad, oval top, well covered with large, light green, pinnate leaves, and late in the season is covered with immense trusses of greenish-white flowers, making the tree quite conspicuous and ornamental. It is a valuable addition to the list of small-growing trees.

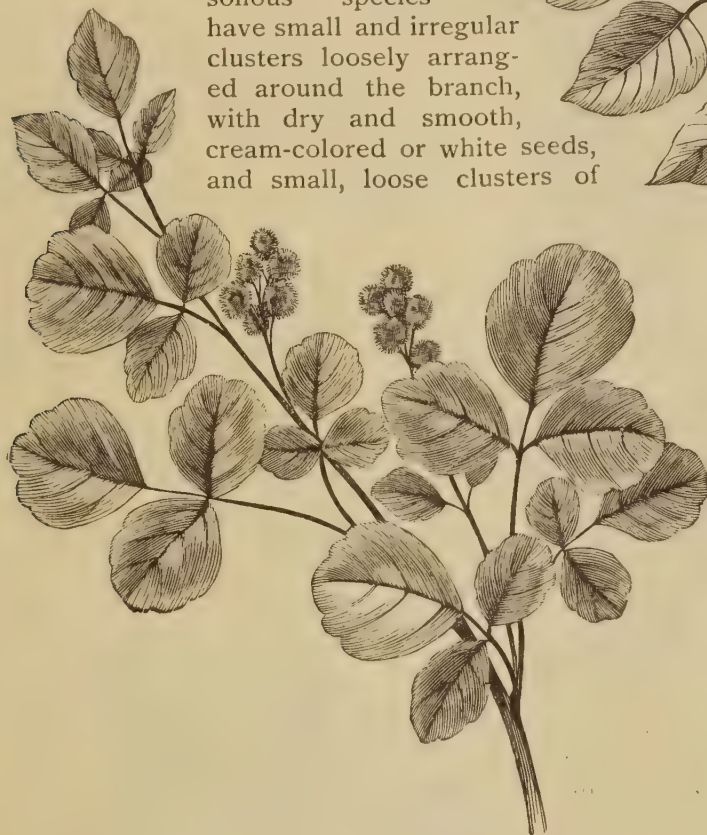
Attention must be called to the two poison species of the genus. The Poison Ivy or Oak, *R. Toxicodendron*, and the Poison Sumac, or Dogwood, *R. venenata*, both are common, and if handled will poison the skin, and cause most distressing eruptions. Some are not affected by handling either of the species, and others cannot go within several feet of the Dogwood without being poisoned. They are quite distinct from the species already named, and after one is once acquainted with them

cannot be mistaken for the other species. As the leaves of all the species color brilliantly, they are very attractive to the gatherers of autumn foliage, and ignorance of the distinctions between the poison and harmless kinds often leads them into dangerous places.

Rhus typhina, *glabra*, and *copallina*, have close and compact, upright, conical fruits, made up of small, round, dark red, hairy seeds, while the two poisonous species have small and irregular clusters loosely arranged around the branch, with dry and smooth, cream-colored or white seeds, and small, loose clusters of



RHUS TOXICODENDRON.



RHUS AROMATICA.

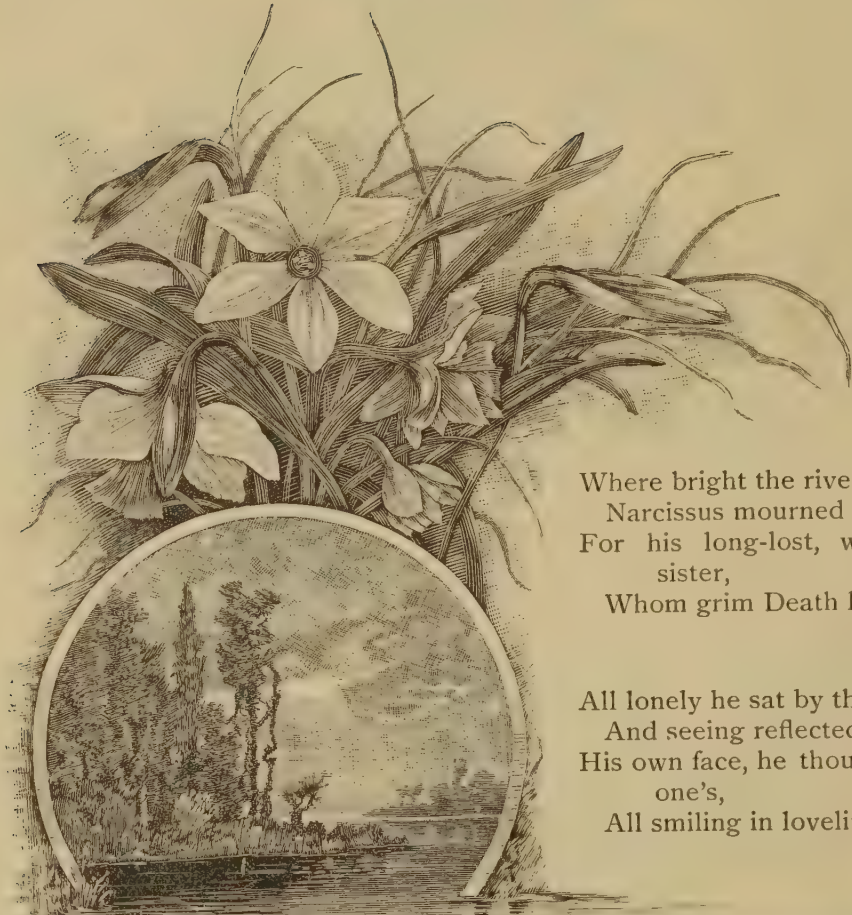
flowers. The Poison Ivy has three leaflets, and is a climber, and the poison Dogwood has a lighter colored bark than the harmless varieties, and shorter and broader leaflets. The difference is shown in the illustrations accompanying this article.

Botanists mention two varieties of the Poison Ivy, *R. Toxicodendron*. One of them is described as a low-growing plant,

which, at the most, only intertwines the extremities of its stems or branches about each other or the taller growing weeds in the neighborhood, while the other ascends the bodies of shrubs and trees and fence posts by means of aerial rootlets, and from this habit it has received its name, *radicans*. By some this last form is considered as a separate species, but such a classification is undoubtedly wrong, the highest position it is entitled to being that of a variety merely, and even this is not beyond question, as the rooting habit may, possibly, be only one of convenience which the plant can display when situated where it can take advantage of it for its own benefit, such as lifting itself up where its leaves can be fully exposed to the light. The plants are very similar in all other respects, excepting slight differences in the leaflets. This disagreeable plant, like all of the Sumacs, propagates not only by its seeds but by suckers and pieces of roots, and thus sometimes makes headway in cultivated fields. It can be destroyed only by persistently cutting it off as soon as a leaf appears.

WARREN H. MANNING.

NARCISSUS.



Where bright the river as silver
Narcissus mourned day after day
For his long-lost, well loved twin
sister,
Whom grim Death had taken away.

All lonely he sat by the stream side,
And seeing reflected so fair
His own face, he thought it the loved
one's,
All smiling in loveliness there.

And seeing the beauteous reflection,
He fancied the bright lips could
speak ;
That the rare light shone in her blue
eyes ;
That the rose-tint mantled her cheek ;

Thus silently sorrowing ever,
He pined in his grief and heart-strife,
Till the burden of woe o'erwhelmed
him,
And sapped at the fount of his life.

Then Echo, the beautiful maiden,
Who loved him with tenderest heart,
Besought him to cease from his sorrow,
And wooed him with delicate art.





"AND SOMETIMES THROUGH GATHERING SHADOWS."

Thus spake she: "Narcissus, thou mourn-
est

For one who has vanished for aye;
Who never can feel thy fond presence;
Why linger here, day after day,

"Forgetful of one who is fonder,
And whose heart is truly thine own?"
Her words fell on ears all unheeding—
On heart cold as heart of a stone.

Narcissus still gazed on the water
Still saw on its silvery tide
The face of his sister reflected,
And gazing and sorrowing—died.

Then Echo, the beautiful maiden,
Was never more heard to rejoice;
But pined she away in her sorrow,
Till nothing remained but her voice.

And over the grave of Narcissus
A beautiful flower sprang up,
With fair, slender leaves, bright and
shining,
And odorous, white waxen cup.

Its fair blossoms drooped o'er the river,
Where so long he sat, and became
Memorial sweet; for all people
Called the strange, bright plant by his
name.

Now, sometimes, at eve, o'er the river,
When white vapors rise like a wraith,
We say: "See! Narcissus returneth
O'er the Stygian river of Death."

And sometimes, through gathering shad-
ows,
We hear a low moan, as of pain,
And say: "Listen! sweet Echo calleth
Her lover, Narcissus—in vain."

Yet pluck we the beautiful blossoms,
Whose delicate, odorous breath,
And white waxen cup tell the story
Of Narcissus—"True unto Death."

DART FAIRTHORNE.

COTTAGE DESIGNS.

The little cottage, which is illustrated elsewhere in this number is intended for persons who want a tasty, comfortable, small house at no great expense. The plan was designed with a view of adding on another room at any time when it may

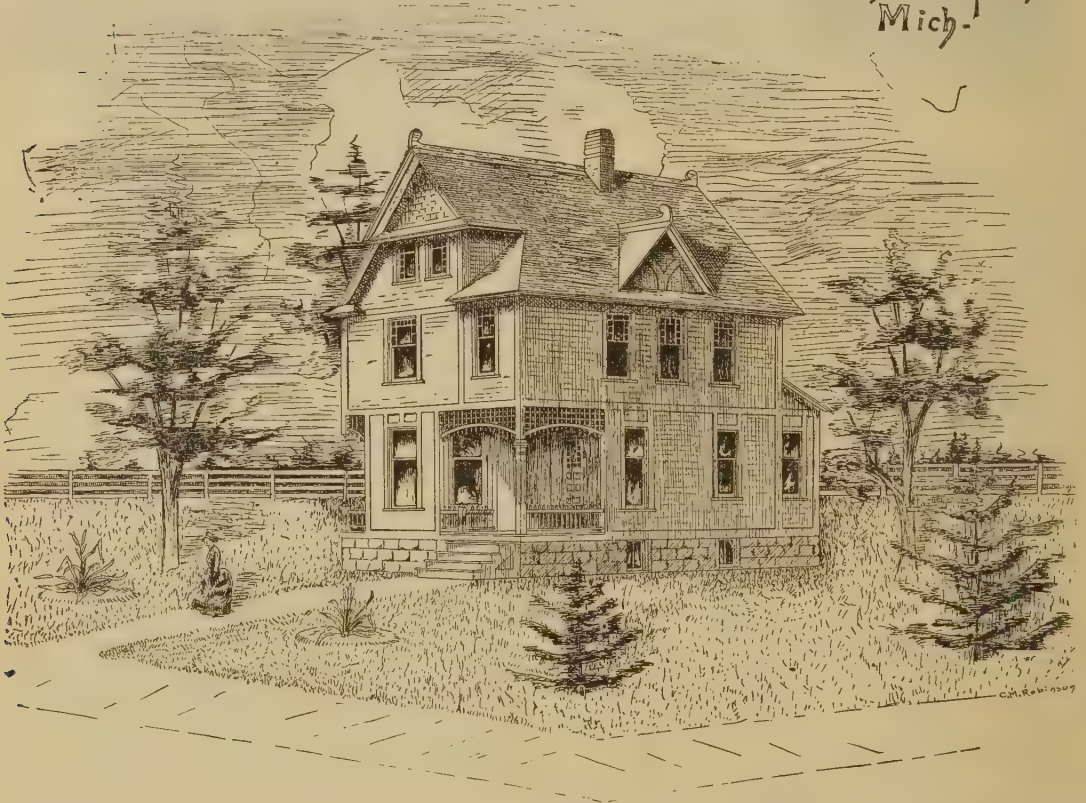
be convenient, for a kitchen, the present kitchen then to be used as a dining-room. This house, with a cellar under the same, finished complete, plain and neat, but not finishing the attic, would cost \$800 in the vicinity of Grand Rapids, Michigan.

CULTIVATION IN ACCORDANCE WITH NATURE.

In studying processes of culture we must not leave out of sight the process which nature follows, for no course can succeed which is not founded upon it. She provides for the aeration of the soil down to the feeding roots by a surface always open, which no rain nor any ordinary tramping can beat into an impervi-

soil as will retain moisture and allow the roots to find both aerated nutriment and moisture at greater than usual depth. Nature does not store prepared nutriment, however copious her supplies may be in the raw, for plants live as we do, by "daily bread"—each summer supplying a certain limited share of food rendered

*D. S. Hopkins, Architect
Grand Rapids,
Mich.*



SEE "COTTAGE DESIGNS," ON PAGE 105 FOR THIS AND THE ILLUSTRATIONS ON THE THREE SUCCEEDING PAGES.

ous crust. Our processes soon destroy this black mold surface, and we are obliged to make good by scratching open the crust we get, by using rakes, hoes, harrows, or scarifiers; beginning always with the first opening of growth, and keeping on during the warm, growing season until the growth of the stem is completed. Nature provides for the retention of the necessary moisture in the soil by a mulching of the leaves of the trees or the stems of the plants and grasses which form her crops. We remove this and then have to make good either by artificial irrigation when rain does not occur, or by deepening and loosening by heavy labor such a bed of

available by a culinary process or ferment in the open moist soil, which prepared food all plants are welcome to as fast as they can absorb it—the most vigorous of any present getting the lion's share and crowding the weaker out. In our culture it is often the weaker ones that we want to have succeed, counting the freer feeders and growers but weeds. And here comes in the test of our ability as cultivators, first in selecting the most profitable individual sort, and next, in strictly preventing any growth of competitive plants, every leaf and root of which are built out of the limited annual supply of available nutriment, so far as soil supply is concerned, at the expense

of the plants of which we undertake the care.

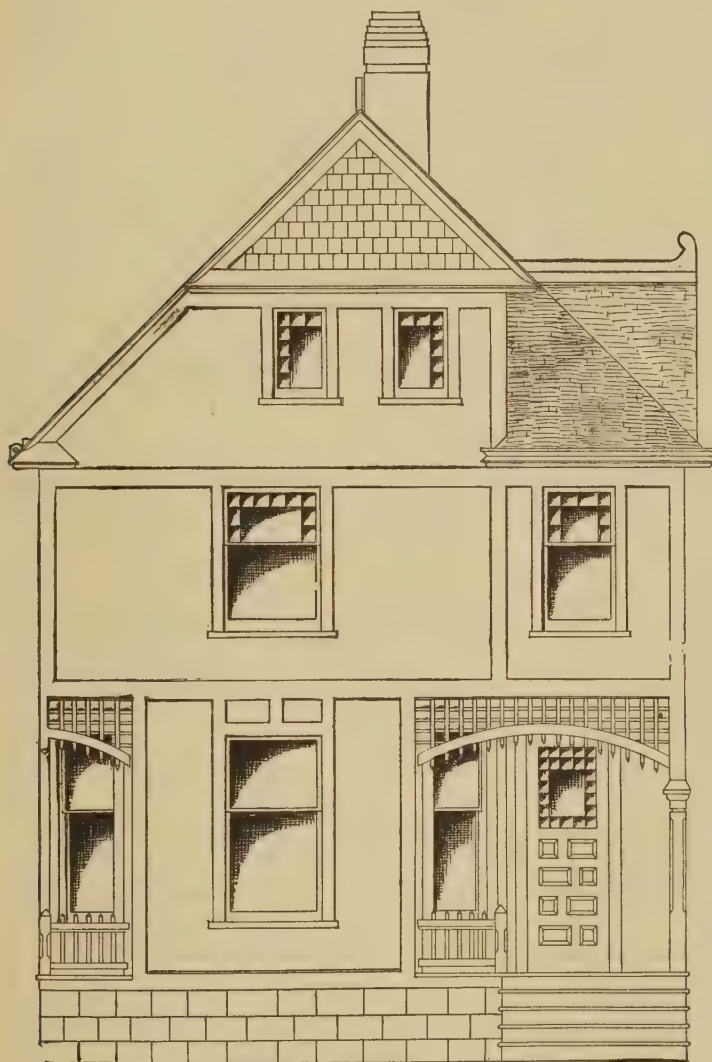
Only those who promptly and entirely suppress every plant not wanted,

and from the first opening of growth to its completion, are worthy to take hold as co-operators with nature in the culture of the earth. W.

CIDER IN VARIETY.

Farmers do not begin to realize their resources, or how to use them. It is sickening to hear of fruit not worth the picking, in orchard regions where every Orange, Grape, Plum, Pear, or Apple

press ought to belong to every orchard, and would treble its returns. A wooden one, I say, of seasoned Maple, for no galvanized metal should be allowed to spoil the flavor of fruit.



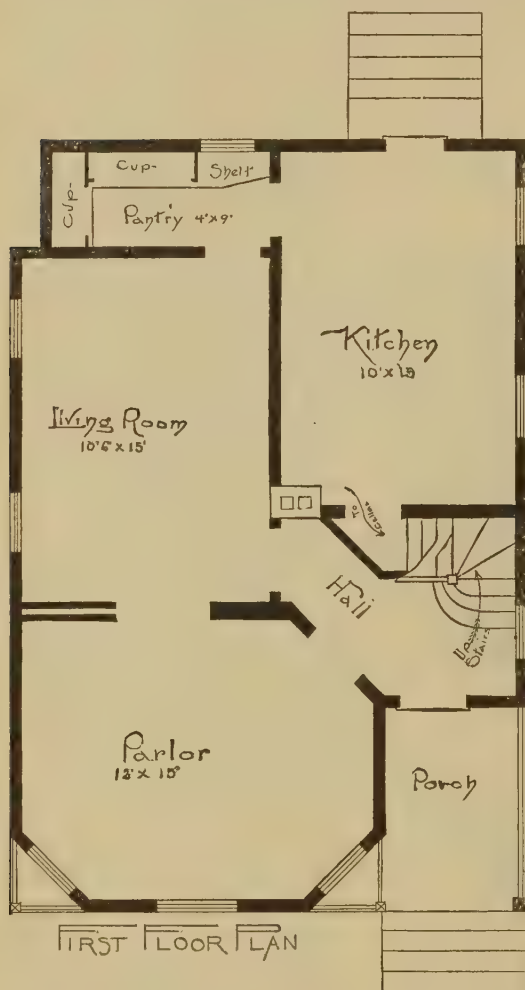
FRONT ELEVATION

Every fruit known will make cider. That from Pears is of ancient renown as perry, but Pear juice is worth more for syrup or fruit honey, as it is rich in sugar. Plum cider is very nice, and Grape cider will yet be the American beverage, having the strengthening quality of wine without its alcoholic spirit, and tasting better than anything known in the shape of drinks. There would not be a Grape too many in the United States if the juice, freshly drawn from the clusters, undiluted, could be placed on sale in our cities. Its delicious, pure refreshment justifies all that poets have sung and writers raved about the blood of the Grape, while for benefit to feeble consumptive or bilious people its effects out do hypophosphites, a trip to Italy, or Saratoga waters. In the Erie wine regions and other vineyard belts, when the Grapes ripen, sallow, liver - congested people from cities take board where they can drink the "must" of new

will make delicious syrup, cider or vinegar, salable at three to five times the price of the fruit. Large growers find their Apples worth \$3.00 a barrel made into cider vinegar. French wine vinegar for fine salads is twenty cents a quart, and any clever housekeeper can make it, or something finer out of our wild Musk Grapes. A plain wooden fruit mill and

wine as it comes from the press, and return built up for the winter's dissipation. Consumptives, especially, can not do better than to try the Grape-cure in this form, and the "vineyard season" may yet be as fashionable as the seaside in July, or Lenox in October. Something placarded as the "Farm Grape Juice" has been sold in restaurants this season,

but it was poor stuff, just beginning to ferment, having the bad effects of wine with none of its good qualities. It can be boiled down and bottled to keep like sweet cider, but it is easier to boil the juice to one-fourth its measure, adding one-quarter pound of white sugar to each pint of syrup before it is done boiling. This will keep bottled any length of time, and for use may be diluted with cold



water and drank fresh, or have three or four times as much water added and stand three days to make Grape cider. The juice is easily drawn by heating the Grapes in a covered stone jar till they are soft, and squeezing through coarse linen. The linen cheese cloth is best, or a sleazy toweling, or clean hemp bag may be used. The juice from fresh Grapes drawn by a wood press, however, is finer than that heated before pressing.

Apple and Pear cider is pressed from the ground pulp, in six-inch layers between coarse cotton cloth, which gives a clearer run than the old layers between

straw. It will keep sweet a week, and may be sold at once for shipping as new cider. But it wants to be rushed from the grinding to the barrel, for standing an hour or two in pomace does not improve cider. It may stand in the barrel over night, and the clearest part at the top be drawn off, which will sell for enough more to be worth the trouble. Early in November cider is put away for winter keeping. The best is filtered through very fine white sand, free from all mineral traces, or through ground china. Old white china finds its use in being ground till it is like granulated sugar, for filtering purposes. The sand has water run through till it comes clear; a cloth is stretched above it in a box with perforated false bottom. The cider comes through beautifully clear, and will keep through winter. This process is used when cider is made in quantity. To clarify it by isinglass, put the broken bits to soak covered with water for several days, adding water daily till all is dissolved. One ounce of this will clear a forty gallon cask of cider. Thin it with water till there are two quarts of it, turn into the barrel and stir it hard to thoroughly mix. As this settles it carries with it all impurities. Fish sounds may be used for the same purpose by covering with cider vinegar twelve hours to cut them and working through a fine sieve. An ounce of this to a barrel may be used like isinglass. Less than an ounce will sometimes clear a barrel, and caution must be used or the cider will taste queerly. This leaves a cider that will stand hot weather without change.

A New York firm owning large Peach orchards, pressed the juice from Peaches and sent it to grocers with great acceptance. It is a lovely amber liquid, clear as topaz, with a perfume that would call one across the room to inhale it, and a wholesomer drink I never expect to see. It has been my tonic for weeks, and as a spring medicine, Jersey Peach Cider, taken after a dose of taraxacum infusion three times a day, before meals, is better than any bitters known.

Sorghum syrup of inferior quality, diluted with water as for vinegar, and kept open in a warm place two or three days makes a cider which old hands will take for a fine Apple cider without suspicion. In old Wisconsin, days before orchards

came in bearing, my mother made the discovery from her vinegar keg newly set. It was a clear, delicate sweet cider, and offering a visitor a glass, in jest, presently the whole neighborhood was calling to test the new cider. A very sharp man would have turned all the syrup into cider and sold as many barrels as he could haul within twenty miles of home.

The best markets are often the nearest. Don't spoil the grass with the pomace. Butter the chopped hay with it, and see how the cows will eat it, and how sleek the horses' coats will look after it. I've heard of a man who packed his hay in layers of pomace and fed it all winter, sheep, hogs and cattle eating it with relish.

SUSAN POWER.

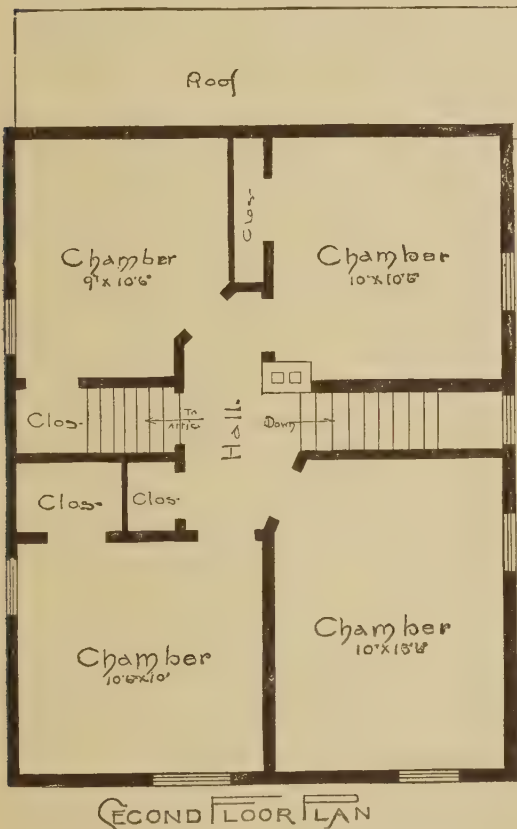
PEAR BLIGHT.

Among the many diseases relating to plants, that of "Pear blight" may be termed the most obnoxious and the hardest of solution. The virulence with which the infectious disease breaks out in certain localities, spreading quickly from orchard to orchard, and withering

affected tree, small yellowish drops can be seen exuding from the stem, which is evidently discolored sap. This excretion contains the germs of poison, a very small portion of which will work destruction in a healthy tree when allowed to commingle with its sap. By taking a needle and puncturing a branch of a Pear tree, and inserting the minutest drop of this excretion, the inoculated portion of the tree will begin to wither and show evident signs of the Pear blight within from eight to ten days. The bark will gradually turn brown and then brackish about the puncture, extending gradually through the stem, and in time to other branches. The same yellowish excretion will then begin to exude from the inoculated limb.

Another fact which experiment in this way has proved beyond doubt is, that the disease is not confined alone to Pear trees, but may be transmitted to the Apple, Quince, English Hawthorne, and other pomaceous fruit. When the excretion is applied to the branches the bark turns brown and then black in the same way as the Pear tree limb, exuding in time a corresponding yellowish sap. Occasionally a strong healthy limb will resist the attack of the virus, and the inoculation will prove abortive. Under the microscope the viscid fluid represents myriads of small bacteria, which evidently are the cause of the disease.

As the disease is communicated to the several branches of the trees by means of the sap, it is clear that it will spread more rapidly among young and succulent trees, and will attack first those branches that are less hardy. Several limbs of trees punctured at the same time will show different degrees of resistance, some exhibiting no signs of blight until the sixth and seventh day, while others will begin to grow brown within three



the limbs of the trees as though stricken by fire, makes it strangely analagous to the dreaded disease of small-pox among human beings when settled in a densely populated community. But how the disease is carried from tree to tree is a question that allows room for considerable speculation, although various theories are given to account for its spreading. On securing a diseased branch of the in-

days. If one of the fruits is inoculated with the exudation it will be discolored in the same way, and fall off the tree in a short time. When the blight once attacks a tree, the limbs on which it first appears must be severed from the trunk, otherwise the flowing sap will communicate it to other portions of the tree.

The mode of transmission from tree to

tree of this virulent disease is supposed by some to be by insects, who puncture the tender bark of the branches and drop a small portion of the excretion on it. That insects do often carry diseases through the air is well known, but it has never been proven beyond doubt that the Pear blight is transmitted in this way.

GEO. E. WALSH, *New York.*

REARING AND TRAINING TOMATOES.

I read with interest the various methods employed by others to accomplish the same end, and not yet having seen my very simple device mentioned, I send it to the readers of the *MAGAZINE*, with the hope that its very simplicity will recommend it to some. Early in January, having secured the variety of seed desired, I plant it in shallow seed boxes—wooden soap boxes sawed in two sections being my first choice—using light, rich, friable soil. These boxes I place in my glass pit, which I heat only with oil stoves, and when up three inches I pot off the plants into thumb pots, continuing the shifting as often as needed until warm weather is at hand, generally by April 15th. By that time the plants are in full flower, and often fruit formed. I prepare my beds by extra deep spading, never allowing any other implement in breaking up the soil. These beds I fertilize only every four or five years, having proved to my entire satisfaction that rich soil is the main, if not sole, cause of the Tomato rotting so badly. Since I have pursued this plan I obtain an abundance of perfect fruit, whereas, before, when I manured heavily, I got magnificent plants crowded to breaking with extra sized Tomatoes, which, in almost every specimen, even before coloring began, the rot made its disgusting appearance.

Now, I plant in a single row, two and a half feet apart, close to a plank fence which commands the full sunshine nearly all day. In this narrow bed I drive rough

stakes front and back of bed, opposite each other. On each pair of these stakes I nail three horizontal courses of lath across the bed, at one, two and three feet from the ground, the upper course being at the top of the stakes. The space between each pair of stakes is generally four or five feet, and on these cross lathings, I place about three long, pliable poles the size of a man's wrist, and this gives me a three-storied structure. As soon as the Tomatoes have reached the first course of slats I give the plants a gentle pull over it to act as a support, and then vigorously pinch them in, believing that to stop the top growth advances the fruit already formed and forming.

I never set more than fifty plants in the garden, as I sow seed out in open ground for later crop. I never allow my fruit to ripen on the vine; each morning I go in person, with my basket, and select the finest and best for self, and if, perchance, any have begun to rot, plucking and throwing away. In this way I have far more than I can use, and with us they are used in great quantities in a raw state, being a well relished breakfast dish, with great lumps of ice placed on top just after peeling and slicing and just before serving. I had a neighbor who tried the "Mikado" last season, and all were delighted. I saw the same variety exhibited in Philadelphia, last August, while in attendance at the American Florists' Convention.

MRS. J. S. R. T., *Spartanburg, S. C.*



FOREIGN NOTES.

VIOLETS.

Plants of Marie Louise, Neapolitan and Comte Brazza are masses of bloom and buds in all stages of development, notwithstanding the fact that we have been gathering from the first mentioned variety large quantities of blooms since the middle of September last, and shall probably be doing so until the middle of April. Considering the small amount of attention that these Violets require, and that of the simplest kind, it is surprising that one should so frequently be asked such a question as the following, viz.: "How is it that my Violets only give me an occasional bloom or two; they were put into a frame in October?" In replying to this question, I usually ask another, viz.: "Were your plants bristling with buds when they were put into your frame?" If not, the frame will have no effect as regards making them produce blooms. The protection of the frame assists the development of the buds with which the plants should be furnished previous to their being transferred to their winter quarters. It is essential that young plants should be grown every year, and therefore runners must be taken about the middle of April, when there is usually plenty to be had with a root or two attached to them. Care should, however, be taken to have runners and not divisions of the old plant. The runners should be pricked out about a foot apart in a partially shaded border which has been well worked, and dressed with manure from an old hot-bed, in which a considerable quantity of leaves has been used. They will be found to quickly establish themselves, and will in a short time grow into fine plants. All that is required through the summer is to keep them clean by giving them a frequent hoeing, and to go through them two or three times and cut off new runners, which they will throw out rather freely. If these attentions are annually given them, the result will be a prodigious harvest of blooms for eight months of the year. I treat that fine Violet, The Czar, in the same way, as I find young plants

not only bloom more abundantly than old ones, but also produce much finer blooms. D. UPHILL, in *The Garden*.

SELAGINELLA HORTENSIS.

We grow this beautiful moss in all sorts of temperatures, and it appears just as much at home in a cold unheated fernery as in an intermediate house or stove. Out of doors, too, I saw it the other day still fresh and green after the bitter weather we have lately experienced. I find it to be the most serviceable for edging groups of plants in pots; for this purpose it should be in three-inch or four-inch pots and in rich light soil. After being potted and set in a shady position in a genial temperature, it soon forms beautiful plants, which may then be removed to a cool house. This moss is invaluable dibbled in pots containing Tulips and other bulbs. Thus treated it makes a pretty surface covering, and sets off the bulbs to increased advantage. Large specimen plants in pots or tubs are greatly improved in appearance by covering the soil with this pretty moss, and for dinner table decoration, if grown in tin or zinc trays, it may be utilized in a variety of ways, and when flowers are scarce it is doubly valuable, either used by itself or as a setting for cut flowers.

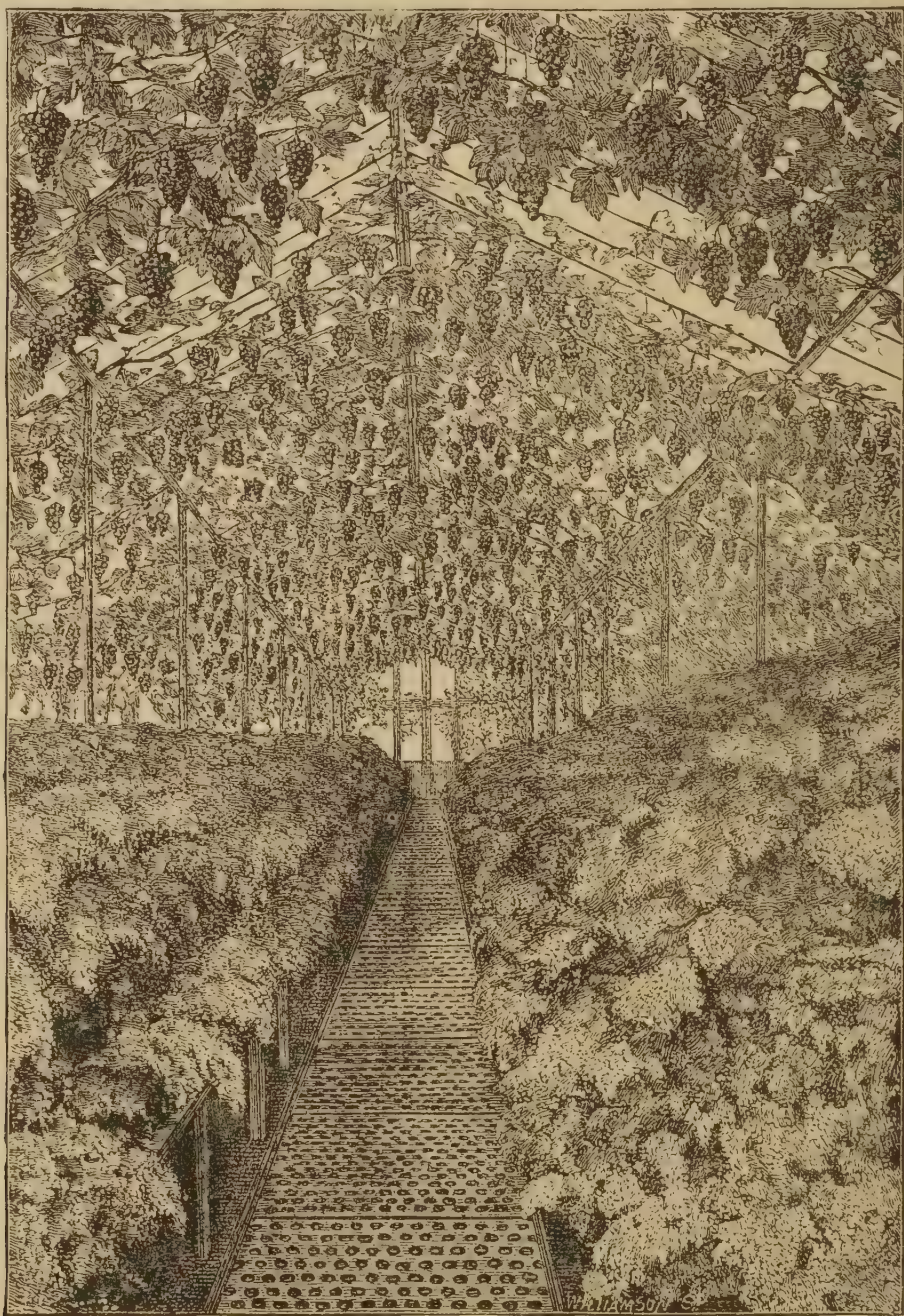
J. G., in *The Garden*.

VINES AND FERNS.

The illustration here given of Ferns growing in a vinery, with an account of the same, taken from the *London Journal of Horticulture*, will be acceptable to many of our readers, as a practical example is thus presented of making a vinery doubly useful by raising a class of beautiful plants that can be variously employed in a decorative way. The journal mentioned, says:

When once a notion becomes firmly established in the British mind it is by no means easy to remove. Whoever formulated the idea that Grapes and plants cannot be well grown in the same house, must be well satisfied with its reception

Evidence to the contrary has been repeatedly adduced, but the idea remains fixed as firmly as ever in the minds of a not inconsiderable section of the community. Unquestionably there are many plants that cannot be grown satisfactorily under vines. Sun-loving plants will not thrive in the shade, and these include the great majority that are grown for the beauty of their flowers; but there are shade-loving



VINES AND FERNS AT CHILWELL.

plants, amongst which are Ferns, and, as every one knows several of our British species luxuriate under the dense shade of trees in woods and plantations, it would be strange indeed if exotic kinds would not thrive satisfactorily in vineries. Numbers of persons know from experience that they will do so, but an example on a large scale is often necessary for placing the matter beyond dispute.

Whoever may visit the fine glass structures in the Chilwell nurseries of Messrs. J. R. PEARSON & SONS during the summer and early autumn will see Grapes and

Ferns grown together extensively, and both grown well. Good, however, as the Grapes are, it is a question if the Ferns would not attract the greater share of attention. The long bold banks of them down the one hundred feet long houses are quite unique. They enhance materially the effect of the structures and afford cartloads of fronds for cutting. The demand for fronds of *Adiantum cuneatum* is so great in the flower markets, that the Chilwell method of producing them is worthy of prominent notice. The engraving, from a photograph, represents a portion of one of the one hundred by thirty span-roofed vineries, the Ferns being grown in pots arranged on benches step above step from both sides to the center, forming massive ridges of luxuriant fronds. They are quite as good as if grown in a "house to themselves," and the Grapes would not be better if there was not a plant in the vinery; in fact, the success of the combination is as complete as it is suggestive, and as such we have pleasure in making it more widely known.

PRUNING IN-DOOR ROSES.

According to my experience, in-door Roses are rarely pruned properly, the operator being too much afraid of over-doing it. The Teas are most neglected, or, if I may so put it, are the worst used in this respect. Only last week I saw two houses in different gardens nearly filled with Tea Roses in pots that evidently had not been pruned at all, those in charge preferring to let them break naturally. In both cases the plants were old and fairly strong, and doubtless will produce abundance of bloom, but this will be small, while the plants will be getting still weaker. I hold that all should be pruned, the spray being cut hard back, or to the first joint, and the remainder to the second, third or fourth joint, according to their vigor. Spray is quite useless, but this and the other weak growth will break more strongly if hard pruned, and, other conditions being favorable, the plants will improve instead of gradually becoming rubbishy and worthless. Whoever saw young shoots on Teas too strong to flower properly? It is the weakly growth that refuses to flower, not the strong shoots, as these if too rank to produce a single bloom will branch and

yield several. A Tea Rose, to remain in a profitable state, ought to be constantly pushing up suckers from the buried stem, and, unless pruning is resorted to, these will not often be forthcoming. It must be understood I am thinking about and treating upon own-root plants, these only, in my estimation, being suitable for pot culture. We certainly frequently have a few worked pot plants which are pruned similarly to the others, but they are bought in for the purpose of affording cuttings early in the spring, after which they are turned out. Pot plants usually give a succession of blooms, being encouraged to break afresh two or three times in the spring, and they frequently endeavor to flower again in the summer. We are not constantly pruning the plants, cutting the buds or blooms being all that is necessary after the early winter shortening back. It is then when we cut back to near where they were last pruned, there usually being several back buds that did not push out below where the first bloom was cut. Thus pruned and otherwise well attended to, the plants can long be kept to a useful size. The youngest plants, or those struck in the previous spring, require little or no pruning, and these we find the best for flowering in heat during the winter.

W. I., in *The Garden*.

ORNAMENTAL ASPARAGUS.

Among the different species of *Asparagus* now cultivated for the sake of their ornamental properties, by far the most popular is that known as *plumosus nanus*, the delicate flat, frond-like branchlets of which are admired by all. In the absence of seeds, which are rarely obtainable, the propagation of this plant is effected by division of the roots, and the present is a very suitable season for the purpose. The plants that are to be divided must be turned out of their pots and the soil shaken from the roots. A very good way to clear the soil from the roots without injuring them is to wash away the ball of earth in a tub of water, as if carefully done, not even the slightest rootlet will be damaged. The plants may be divided into as many pieces as there are separate crowns, and in some cases it will be necessary to use the knife for that purpose, but in doing so care must be taken not to cut off any of

the shoots, as the underground portion is not unfrequently much curved, and appears, unless very closely examined, to spring from a source other than it really does. After division the plants must be potted into small pots, and, if possible, plunged in a gentle bottom heat till root action recommences.

Other kinds of *Asparagus* may be increased in the same way, but in the case of the low-growing, *A. decumbens*, the operation is best performed in the autumn before growth commences, as this species is not evergreen, but rests during the latter part of the summer, and recommences growing in the autumn. Some kinds of *Asparagus* again, notably *plumosus* and *tenuissimus*, will strike root readily from cuttings, notwithstanding the assertions that have been made to the contrary. The cuttings are simply formed of the young branchlets taken off at a length of about four inches, and dibbled into pots of sandy soil. They will have to be kept in a close propagating case, and so treated will soon form a base from which shoots will push up, and in time small tuber-like masses make their appearance.

In the case of seeds of any of these kinds being obtainable, they should be cleared from the pulpy matter surrounding them and sown without delay, for if kept out of the ground for a lengthened period, they often lie a long time before germination takes place.

T., in *The Garden*.

KALANCHOE CARNEA.

The *Gardeners' Chronicle* notices the introduction of a new shrubby plant from South Africa. It was exhibited in January last at a meeting of the Floral Committee of the Royal Horticultural Society, and was awarded a first-class cer-

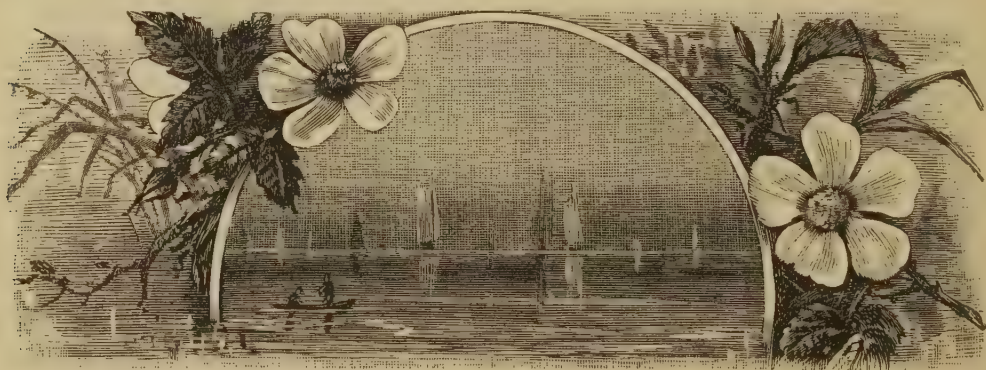
tificate. The plant, which grows less than two feet in height, "is said to be of easy culture, and has, moreover, the decided advantage of being a free-flowerer. The flowers themselves are pink, and sweet-scented, and the plant will probably become a favorite for general cultivation and for market use, especially so as it is in full flower in the winter season." The flowers are about three-quarters of an inch in length, tubulous, four-parted, and stand erect in large terminal umbels.

A ROSE-FLOWERED CHERRY.

E. A. CARRIÈRE, in *Revue Horticole*, mentions the raising of a tree from seed of some variety of fruiting Cherry which, as it came into bloom, last year, proved to have flowers of a deep rose color. It has not yet borne fruit. He remarks as follows: The plant will be very dwarf, consequently proper for ornament. As to its general aspect and its habit of growth it recalls those of the type of the Montmorency Cherry, from which it has been derived. This, then, is probably a step toward obtaining a new class of fruit trees, doubly valuable by their edible fruits and their ornamental flowers.

IMPROVED CANNAS.

JEAN SISLEY makes the statement that M. CROZY, a distinguished horticulturist, of Lyons, France, has, by hybridization, transformed the Canna into a plant worthy of the name. The tiny flowers of the parent plants have been greatly enlarged by him, and now Cannas are ornamented with large and numerous flowers, brilliant like those of the *Gladiolus*, while the ample foliage of the Indian plant has been retained. Thus improved they are not only valuable garden ornaments, but also useful for in-door decoration.



PLEASANT GOSSIP.

PLANT QUERIES.

1. Will Chinese and Japan Pinks keep over winter in the open ground in this latitude? Also Daisies?
2. Is Harebell a cultivated plant?
3. I have a bulb of *Amaryllis longifolia* rosea. Please tell me time of blooming and resting. Also, if I can bloom a bulb without bottom heat? Would a little hot water once or twice a day in the saucer be any kind of a substitute for bottom heat? Also, can bone meal be used in the ground for this plant?
4. When Begonias, having thick, waxy leaves, drop them, especially if the plant is jarred a little, is it because the plants have too much water?
5. I had a bulbous plant given me, last summer, and I would like to know name and treatment. Enclosed is a small bulb and two leaves.
6. Has *Impatiens pallida* ever been cultivated? I think it much more curious than the cultivated single Balsam, and very pretty, with smooth, shining stems, semi-transparent.
7. Are *Sparaxis* and *Ixias* suitable for growing in a sitting-room.

E. C. M.

1. The Chinese and Japan Pinks can be wintered over by having a protecting covering of leaves or coarse litter.

2. The Harebell, *Campanula rotundifolia*, is often cultivated.

3. The *Amaryllis* mentioned blooms in the latter part of summer and early autumn. Bottom heat is not necessary for it, nor is the use of hot water. Bone meal would be a good fertilizer for the soil of the plant.

4. The Begonias dropping their leaves in the manner mentioned may be on account of too much water, or being kept too dry.

5. The unknown bulb cannot be named from the specimen received.

6. We have never heard of the cultivation of *Impatiens pallida*.

7. *Sparaxis* and *Ixia* are sometimes grown in the window.

PLANTS NOT BLOOMING.

I have a white Chinese Primrose, Flowering Maple and Double White Petunia which bud, but do not blossom. The White Petunia bud grows until it is just beginning to open and then it blights. The Flowering Maple does the same. The Chinese Primrose bud does not blight, but it does not open and is always green. Will you please inform me what to do for them? They always blossomed before when they budded. MRS. G. D., *Lewiston, Me.*

There is a deficiency of light or heat or both, and, perhaps, some other wrong conditions.

THE WAX PLANT.

What care is necessary for the *Hoya carnosa*? I have a large one, and it keeps putting forth buds, but they remain dormant. I am very anxious to have it bloom. What can I do to make them blossom? I have no difficulty in my other plants flowering.

The seeds I sent to you for, last spring, came true to promise, just as they always do. The Pansies were a source of delight, and the Asters, Imbrique Pompon, were like little Roses. The Phlox was beautiful, and there was one double white one in the package you sent me. I never saw one before. I have a beautiful flower garden every summer. I prize the MAGAZINE very much, and have been a subscriber for it for a number of years.

E. M. R., *Liverpool, N. Y.*

The Wax Plant should be kept nearly dry during the cold months. When it shows a tendency to grow in spring, water lightly, keep it in a warm place where it is lightly shaded during the brightest part of the day by the foliage of other plants. Water is to be supplied at all times in very moderate quantities. Give the plants air every day when the weather will allow it. During the heat of summer a good place for it is on a veranda sheltered from the strongest winds, and where it can have the sun in the early part of the day.

MALAGA VINES.

Will you please let me know the treatment of Malaga Grape vines, about the soil, temperature, situation, &c. We have two of them just started from seed planted this winter; they are in with our Callas and have only their seed-leaves. What shall we do with them? S., *Ravenna, Ohio.*

Our inquirer should remember that varieties of Grapes, like those of Apples and other cultivated fruits, do not reproduce themselves from seed. In this case, therefore, the two young plants are not Malaga vines, but only seedlings of the Malaga. What they are can only be ascertained when they produce their fruit, and probably they will prove inferior to Malaga, which is poor enough. Of course, in this country, they could only be raised under glass, not in the open air, practically, therefore, they are worthless, and the sooner they are pulled out and thrown away as weeds from the Calla pots, the better for the Callas and the peace of mind of our inquirer.

GRAPES—PEARS.

Your reply, in your February number, to my note on Celery, Grapes and Pears, is received. Thanks for the notice, but I cannot accept your theory from the fact that, although the soil is quite rich, it is very dry, being but twelve to eighteen inches deep, and then comes scaling rock. Think the rock causes too much of an under drain. The Pear trees, where the fruit failed to ripen, were not watered or mulched. Should they not have been? The Grape vines where fruit did not ripen, were watered very little and lightly mulched. Some vines of same kind of fruit were neither watered nor mulched, and in poor soil. This fruit dropped some time before ripening.

J. H. R., *Hartford, Conn.*

From the above statements, in connection with those previously made, the only conclusion to be arrived at is that the trees and vines were more heavily laden than they were able to bear. They could not perfect the fruit in the time they had before frost. There is no evidence that there was a lack of water in the soil, although the depth is not great. In seasons which have the usual rainfall it is possible that neither water nor mulching will be needed; but it is necessary to restrict the amount of fruit by thinning it out soon after it has set. If half the Pears and Grapes had been removed soon after forming, there is no doubt the rest would have been very fine, and would have ripened at the proper time. If the soil had not been sufficiently moist in this case, the fruit would have shrivelled and dropped off, as it did with the few vines that were in poor soil and were not watered. With half, or more, of the fruit removed, the demand for water would have been greatly lessened. On the other hand, if the season could have been sufficiently lengthened with sun and heat, there is no doubt the fruit would eventually have matured. It was a case of overloading the vines and trees, when in other respects the conditions were favorable, and, like an overloaded animal, a longer time was required to reach the end of the journey.

GRAFTING THE HICKORY.

May I ask what is the best way of grafting the Hickory?
E. A. W., *New York City.*

The Hickory cannot be grafted with much success. It is a very uncertain operation, so much so that grafting is not considered a practical method of perpetuating it. Root suckers are now thought to afford the surest way of increasing a particular specimen or variety of this tree.

DOUBLE VIOLETS COME SINGLE.

Will you kindly, in your MAGAZINE, give some explanation of the following facts; by so doing you will greatly oblige some of your subscribers. About forty years ago, I, then a young girl, planted a bed of old fashioned Double Purple Violets in the Manse garden of the ancient Abbey of Fearn, in the north of Scotland, taking the plants from a clump which had grown in another part of the garden for at least twenty years then. Both clump and bed always produced abundance of double flowers. Two years ago my daughter visited my old home. I directed her to the spot where the bed of Violets were planted. She easily found it, and brought me a quantity of the roots, which were planted here, Sidney, Cape Breton. They survived the winter bravely, and in early summer bloomed freely, producing flowers of the color and fragrance of the old stock, but single. There can be no mistake. The old bed was in its old corner, just where I left it forty years ago, unchanged. A few of the plants we wintered in pots did not thrive well. A friend tells me some Double Violets he purchased from an American florist acted in the same way. I shall be very glad of a few of your interesting remarks on the subject.

C. McLEOD, *Sydney, Cape Breton, N. S.*

We prefer not to make any remarks on this case, but leave it for the consideration of our readers, some of whom may have had the experience which will enable them to give the required explanation, and for which we shall give the necessary room in our pages when offered.

JASMINE NOT FLOWERING.

More than three years ago I bought a Jasmine, white flowering, fragrant. It is a healthy vine, but has given no flowers yet. Please tell me, in your MAGAZINE, what I can do to bring it to bloom.

MRS. A. F. M., *Sycamore, Ill*

This is, probably, *Jasminum grandiflorum*. Cut down the plant this month and repot it in the same sized pot it has occupied. Remove the soil from the outside of the ball, and fill in with a mixture of rotted turf and a smaller quantity each of leaf-mold, manure and sand, all mixed together. Give but little water until new growth starts, and then more freely. In June, plunge the pot in the open border to remain to the end of summer, attending in the meantime carefully to the watering of it as needed. By the first of September remove the plant to the house.

WINTER NOT ENDED.

To-day, March 25th, we are, in this region, in the midst of ice and snow. This State and the Eastern States have now had five wintry months. The ground is hard frozen, and the earliest plants and trees have scarcely shown signs of moving. It is a late spring.

FLORAL GOSSIP.

The catalogues are coming in thick and fast, and what delightful reading they are to any one who loves flowers. And what beautiful things most of them are. Not much like those of a few years ago, when all the attempt at beauty consisted in a few inferior illustrations. Among them all, I think VICK'S has the most tasteful and artistic cover. It is well worth a place on any table as an ornament, but it will not be relegated to the merely ornamental department, its contents are too interesting for that. It will be read again and again, and it will do a good work, for it will stimulate the lover of flowers to make an effort to have a bed or two, if no more, of them, and "I hold it true," that whoever grows a flower does something to benefit himself and everybody who shares his pleasure in it. If there are "sermons in stones," there are more delightful ones in flowers, and they exert a softening, refining influence on every life with which they come in contact. Let the good work go on; educate the children in the delightful mysteries of growing things, and you will be putting a most delightful book in their hands from which they can read great lessons, and learn "to look through nature up to nature's GOD."

Last season I tried growing Pansies in a new manner, at least, it was new to me. We sowed a large quantity of seed quite early, but the drought came on before the plants had attained much size, and all through the summer they just managed to live, and that was all; indeed, they would have died long before fall came with the long deferred rains, had we not watered them daily. But the water we applied did not seem to produce the same results that follow the application of moisture in a natural manner, and the young plants stood still. But when it began to get cooler, and an occasional rain came, the plants began to grow. I wondered what effect pinching back would have on them. They were inclined to make a growth of one or two branches only when they got started. So I went to work and pinched off the ends of all of them. This induced other branches to start, and these were pinched off when they had grown a few inches. In this way I had some compact little plants rather than the usual slender,

sprawly specimens. I think this treatment would be of benefit to the Pansy under any circumstances, and I shall practice the pinching system the coming season. It is a characteristic of this most charming flower to send out but few branches, and these are so slender, as a general thing, that they are easily broken. If the plant will adapt itself to pinching, as I think it will, during its summer growth, I do not see why we may not have bushy, compact plants, with more flowers from them than we usually get from plants allowed to grow to suit themselves, because there will be more branches to produce flowers on.

I wonder why it is that we do not see the Azalea in greenhouse collections more frequently than we do. I have probably been in a score of greenhouses during the past year, and in not one of them did I find one Azalea. I think the impression prevails that it is a difficult matter to grow this plant well. I do not find it so. Before I had a greenhouse, I grew them very satisfactorily in the sitting-room windows, and if they can be grown well there they can be grown a great deal better in a greenhouse. I have an idea that a failure to grow them well generally results from a neglect to give them the proper soil. They do not like a soil containing lime, and as most of our soils contain that—that is, most of the soils convenient to the amateur florist—they are not afforded the nutriment they require, and are starved and become sickly and at last die, and the owner of them comes to the conclusion that they need some kind of culture which he is not able to give them, and so he turns them over to the professional florist, and gives up trying to grow them. In this locality it is almost impossible to get the proper soil for them, and I send to Chicago and get a boxful whenever it seems advisable to repot my plants. With this peat I mix a sharp sand which never loses its gritty consistency under any circumstances. In this soil they grow finely, and I never fail to get a splendid crop of flowers every spring. If there is any plant more showy than a well grown Azalea when in full bloom, I would like to know what it is. I syringe my plants daily to keep down the red spider, after bringing them into the house in fall. In summer I put them out of doors in a

shaded place, taking great care to prevent the soil in the pots from becoming dry, for, if it were to do so, the delicate roots will be greatly injured, and quite likely the crop of flowers for the coming season would be spoiled. As the roots are very fine and thick, and form a compact mass through which water sometimes finds difficulty in making its way, it often is the case that the difficulty experienced in growing this plant is the result of a lack of moisture among the roots where it is needed most. It may penetrate the soil about them, but it does not get among them, and they suffer to such an extent that the plant has not vitality enough to produce flowers. It is a good plan to have the soil at least an inch below the rim of the pot. Have a good drainage, and then fill the pot to its edge with water, and you will be quite sure to give the roots all the drink they require, and there will be no bad results from over-watering, as there would be if you were to neglect the item of drainage. The buds for next season's flowers are formed this season, and if you allow the earth about the roots to get very dry these buds will be almost sure to drop.

The old Rose Geranium is a very fine plant for the sitting-room, for two reasons—it is fragrant and beautiful. I ought to have said for three reasons, the third reason being its extremely easy culture. But I think the variety of fragrant-leaved Geranium, called Dr. Livingston, is really finer in all ways except that of scent. It has a fragrance, it is true, but it is not of that agreeable sort which has made the Rose Geranium so general a favorite. But for beauty of leaf, it is preferable to the other. It has a leaf shaped something like that variety, only much finer cut and more Fern-like. For use in bouquets, where a pretty green is required to mix with the flowers, we have nothing more satisfactory. A large plant of it is very ornamental when grown as a shrub or standard. Like the Rose variety, it is of the easiest cultivation. To grow either of these varieties well, you must give them a rich soil and plenty of room for their roots. Small pots are undoubtedly best for flowering Geraniums, but where the foliage is what a plant is grown for, you must encourage a vigorous development of branches, and

these will only develop well when the roots have all the room they want to spread in. I prefer to train these plants as shrubs, with several stalks starting from the ground. This can be done easily by pinching the top of the young plant off when it has grown to be four or five inches high. Branches will start at every leaf below, and as many can be left as you think it will need to give the plant a bushy top. If you prefer the tree shape, allow only one stalk to grow, and keep all the side shoots pinched off until it is within a foot of being as tall as you want your plant to be. Then pinch off the top, and when branches start retain only those near the top of the stalk. If there are not enough of these to make a bushy top when grown, pinch them back before they make much growth, and they will send out branches from which you can select enough to give you as thick a head as you want your plant to have. I grow these Geraniums in a soil made up of loam, well rotted cow manure and plenty of sand. Put in enough of the manure to make it very rich. Shift whenever the soil in a pot becomes filled with roots. If you allow a plant to become pot bound it will be severely injured, and it will be a long time before it recovers from the check it will receive. Syringe daily to keep the leaves clean. You will often, in fact, almost always, see yellow and dying leaves on dirty plants, but seldom on plants which are kept clean. *

THE PLATYPUS.

It is with pleasure that we lay before our readers the following communication from our esteemed correspondent, S. W. VINEY, of Melbourne, Australia, which supplements the article that appeared in our Young People's department last year, and informs us more completely in regard to the habits of a remarkable little animal. Mr. V. says:

"I may congratulate you in the very excellent production, in an artistic sense, of the picture of the above creature in the MAGAZINE for October last. As one who has seen and handled many of these curious animal conglomerations, I may say, both pictorially and descriptively, your notice is a very truthful one. In view of the probable occupancy of a prominent position in scientific circles as the *corpus*

vile on which the arguments *pro* and *con* of the scheme of evolution are to be based, I forward you some additional information in reference to this wonderful creation or development. It is an account which was published in the *Port Augusta Dispatch*, of South Australia."

"The Duck-billed Platypus was introduced to the scientific world in 1769. This quadruped, with its bill like that of a duck, and with its webbed feet, astonished the savans of that day, and they at once called it the *Ornithorhynchus paradoxus*. It has been a puzzling fact in zoology ever since. One of the shyest of living things, it has been most successful in eluding the curiosity which it has aroused in mankind. The entrance to its habitation is a hole in a river bank, under low water mark. Thence it burrows upwards and inland to well above high water mark. What more effectual mode of concealment could be devised? Not only was it strange in appearance, but in its habits it was equally so. Until two years ago, the process by which it was reproduced was one of the most interesting problems in natural history. Persons declared that they knew from actual observation that it laid eggs, but those declarations were received with suspicion. No scientific man was willing to believe that a mammal could do such a thing. At last, in 1884, as will be remembered, Mr. W. H. CALDWELL, a scientist who had come out from the old country specially to inquire into the manner in which platypi perpetuate their existence, found proof that they are oviparous, although they are undoubtedly in structure, to a great extent, mammals. He showed that the eggs, in the manner of their development, bear a close resemblance to those of the reptilia. Two eggs are produced at a time, and are enclosed in a strong, flexible white shell. Some reptiles' eggs are, as is well known, so far as the covering is concerned, thin and flexible, while others are hard and calcareous, and much resemble those of birds. Like mammals generally, the paradoxical platypus suckles its young; like birds, it lays eggs. It being proved that the platypus was oviparous as well as mammalian, other questions arose. What was the process of incubation? How long did it take? And how did the little quadruped manage, when released from the egg, to do, with its presumably hard bill, what all other little mammals do with their soft mouths and tongues? Light has been thrown on the last point recently by the Rev. F. A. HAGENAUE, of the Ramabyuck aboriginal mission station, Gipps Land. On October 1st, the *Gipps Land Times* announced that Mr. HAGENAUE, having been anxious to secure a pair of platypi for the Acclimatisation and Zoological Society's Gardens, Royal-park, set a couple of his black fellows to look for them. In their search they came upon a nest containing a male and female, and a very young member of the family, which seemed as if it had just been hatched. It was from one to one and a half inches in length, and it had a very soft beak. Mr. HAGENAUE had it preserved in spirits of wine, and sent it to Professor M'COY. Since the date named other interesting communications on the subject have appeared in the *Gipps Land Times*. One of these is from Mr. HAGENAUE himself, and is dated October 5th. In it he states that Baron VON MUELLER has forwarded the young platypus in question and its mother to Professor Sir RICHARD OWEN. He adds, 'In order to give every particular, I was requested to not only supply all possi-

ble information, but also to send the nest in which the young platypi was found. I looked carefully over the ground and took correct measurement of the passages from the water level to the burrow, about ten feet, above and not less than twenty-three feet away from the water, above the highest flood mark. How great, however, was my surprise, when my black men discovered another nest with two more young ones and their mother in it. The mother was captured, and the nest with the twins most carefully taken, and by this morning's train sent to Melbourne, so that they can be forwarded to London by the next mail, or at least one of them, and the other can be left in the hands of our learned Professor in Melbourne.' "

TOMATOES FROM CUTTINGS.

English gardeners who have to grow Tomatoes under glass to meet the increasing partiality for them at the dinner tables, take off the flowering shoots and root them, as we do sometimes with *Chrysanthemum* shoots, in order to have the flowers without the large roots and long stems of the Tomato plant. These Tomato cuttings yield much fruit in little space, and it ripens more freely because of being near to glass. They are kept over winter in good light, and at a temperature of about 50°. W.

FRESH TOMATOES IN WINTER.

In a business letter to us, of the date of January 10th, from H. J. RICHARDSON, of Stewartstown, Pa., he mentioned that he was still using fresh Tomatoes from the vines. We requested him to inform us how he managed to keep the fruits fresh until that time; his reply was as follows:

You wish to know how I kept Tomatoes till the 10th of January. It was not by any especial effort or extraordinary plan. As usual, I hung vines in the cellar, but perhaps the vines were differently trained. I tie most of my Tomato vines to stakes. Had one that grew about ten feet high last summer, a Hathaway's Excelsior; it was a curiosity to every one. The summer before, I covered them with thin sack-ing or bag stuff, old phosphate sacks, on account of the chickens; put on the covers when they got large enough for the chickens to pick, and I found the Tomatoes greatly improved, the skin not so tough and the flavor very much improved to my taste, and persons that ate them said they were the most palatable ones they had eaten. Pardon my digression.

I have wandered away from what I set out to tell, *i. e.*, the keeping of the fruit. Well, I tied the vines up, pinched the buds off after a cluster had started, thus forcing a strong vine and a tall one. When frost threatened, many of the vines were full of Tomatoes of all sizes. I took them up with as much dirt as I could keep, but that was not very much as the soil was sandy, and took them to the cellar and hung them near a window where the sun shone in, and gave them plenty of air day and night; until after Thanksgiving day we had more than our small family could eat. After the first of December the

larger and more forward were pretty nearly done, but they kept on ripening, although the vine seemed thoroughly dry. They became paler and less palatable. Those at Christmas were pretty good, sound and ripe, rather pale red. I supposed that would be the last; I went to take the vines out and found two or three Tomatoes that were eatable. I ate them, and found them very much better than I expected. I found the fruit and left the vine; but I don't believe I can get one for February, if I do I'll report. My cellar is pretty light, and the night air seemed to nourish them until it got so cold that the windows had to be closed. Next year, if I live and have my health, I think of trying to "conjure" up some successful way to keep them as long as possible in a more perfect condition.

SMALL FRUITS.

The man who is willing to study up the business, and who has persistent pluck, sufficient to keep him at work on his plantation for eight months in the year through a series of years, and who has some capital, some business capacity, and a suitable soil, may try the small fruit business. Under any other circumstances it is safe to leave it alone. It undoubtedly possesses attractive features. Human nature will require to be revised before we can look with indifference upon the beautiful fruits. The coming man will continue to eat berries. The coming fool will continue to produce them at a loss to himself. The coming fruit-grower who fulfills reasonable conditions will probably average fair profits.

Canadian Horticulturist.

A TEST OF CLIMBING PLANTS.

Last season, I planted from the greenhouse quite a number of climbing plants to determine their relative value for outdoor culture. The Passifloras were all quite unsatisfactory, *P. Constance* Elliott gave no bloom at all; *P. cœrulea* scarcely any; *P. incarnata*, the hardy variety, flowered well, but seemed determined to take possession of the ground in all directions. Wherever the rootlets became detached by cultivation the ground seemed literally alive with the young plants. In this respect the plant will almost rival the Canada Thistle in reproducing itself. *P. trifasciata* made but moderate growth, as this is a hot-house variety not much could be expected from it in the open ground. *Campsidium filicifolium*, also, made but moderate growth. *Physianthus albens* grew and bloomed profusely during the entire summer, and its fragrant flowers filled the air with their

perfume. One of our seedsmen deserves credit for giving this plant a prominent place in his catalogue, styling it the "Cruel Plant," as it is said to imprison insects that come in contact with its flowers. However, I cannot vouch for this, never having noticed any dead insects in connection with it, but it is a plant worthy of general cultivation in the Southwest. In addition to the climbing plants that are known to succeed well in all sections, such as *Pilogyne*, German Ivy, Madeira Vine, *Cobœa scandens*, &c., the *Cobœa scandens variegata* should be more extensively planted wherever a warm, sunny position can be given it. I have been more and more impressed with its value as an out-door climber for several years.

LEVANT COLE.

THE NORFOLK GRAPE.

Having been interested in watching the growth and fruiting of this variety for two seasons past, we recently wrote to Mr. N. B. WHITE, of Norwood, Massachusetts, who originated it, for something of its history and character. Mr. W. kindly replied, saying:

"Its origin is the same as the August Giant, Oriental, Norwood and Occidental. All were produced by fertilizing blossoms of a *Labrusca* vine with pollen of the Black Hamburg. The Norfolk is a strong grower, quite hardy, early, and very prolific; bunch well shouldered and very handsome; bunch and berry about the size of Catawba. Berry usually, or frequently, oblong, covered with a lilac bloom, sweet, and admired by all who do not object to its Muscat flavor."

This description agrees with our knowledge of it, as observed for two years. It is of a reddish color, and, not inaptly, has been called an Early Catawba. Its ripening season we should think to be about the time of Concord. Its quality ranks high, and apparently is a sturdy, vigorous variety.

In searching the trade lists for this variety, we found no mention of it, except by one or two parties, and naturally curiosity was awakened to know why this was so. By tracing its history further, we learned that the stock of the Norfolk and that of the Amber Queen and the August Giant were all purchased from Mr. WHITE by the late GEORGE A. STONE. Up to the time of Mr. STONE's decease, the Nor-

folk had been but little propagated, and when the estate was settled the stock of it went into the possession of a party who has since done but little to disseminate it. This accounts for the slight knowledge of it that the public yet has, and, we think, when it becomes well known it will receive popular approbation.

PLANT AND WEATHER NOTES.

I am in deep mourning. For years, I have had my window garden in winter, and beds and borders of bloom in summer, but for good reasons have been obliged to give it all up, so, this winter, I have not had one blossom in the house, though I have nursed a few sickly plants that would not do well in a dark cellar, and now have a pot of Roman Hyacinths, one flower of *Amaryllis Japonica*, and a few flowers of *Oxalis*.

In front of the house we occupy stands a straggling old Cottonwood tree, which is a decided nuisance, for the roots and shoots hinder anything else from growing.

The creeping Mallows is about as mean a thing as grows. By the way, did you ever notice what a lovely little flower it bears? Just wait until one shows itself, only a little while now, then pick a branch and take your little magnifier, sit down and examine it. How innocent it looks in its white purity with faintest pink veins, and the stigma a rosy hood, and the whole thing so tiny and delicate that you must take a glass to discover its beauties. The plant must have been made for an excellent purpose, else why should it produce so many seeds? A brood of chickens turned into a patch of it will eat every seed just as the husk opens, showing the white "cheese" within. Fattening growing chickens is the only use I know for it.

The other day, I drilled in a row of Lettuce seed, and a flock of sparrows were sitting on the fence close by, watching; as soon as I left, down they went, down to spoil my design, but the seed was so carefully covered that they were disappointed; I feel sure that they will have Lettuce for breakfast before I do.

This 9th of March, here at Peoria, Illinois, is a lovely day, and the blue-birds have come, so we shall soon be panting in summer heat and calling for ices and fans.

I am glad the Hollyhocks are coming

into fashion. They were always favorites with me—Poppies, too. How I wish some of the flower growers of to-day could see a bed of Poppies that "we, children" raised over fifty years ago. It was immense in dimensions and vigor, while the coloring ran from white through all tints of violet and red up to almost black. Such a blaze at noonday. Then, soon after, we obtained seed of the so-called "French Poppy," which was quite different from all other sorts, and is still quite rare, I think. I have kept seed of it all these years.

Does any one of the MAGAZINE friends grow the white Cape Marigold? It is good for summer or winter—a constant bloomer. R. A. H.

UNIQUE PLANTS FOR THE LAWN.

Prof. POPENSE gives much approval in the *Industrialist* to the *Ailanthus* and *Angelica* tree, or *Hercules' Club*, as tropical looking objects on the lawn, when cut to the ground in the spring, and only one shoot allowed to grow. The *Angelica* tree should only be cut down in occasional years, as it is finest when in bloom, while the *Ailanthus* is offensive when flowering. Both these trees sucker freely, but on a lawn the sprouts are easily kept down. A handsome small tree, with similarly picturesque foliage, is the *Feathery Sumac*; and another, as fine, yet different, is the cut-leaved variety of *Sambucus pubens*, *Red Berried Elder*, strong young shoots of which look like purple-black hearse plumes, and have a strikingly unique and fine appearance. This variety was discovered on Tassy Mountain, by a botanical party from State College, Pa. E. WARING, of Tyrone, Pa., can probably supply a few cuttings. It does not sucker. W.

SUCCESS WITH GLOXINIAS.

I have had such good success in raising seedling *Gloxinias* that I must write you about it. I sowed a paper of seed the first day of March, 1886, and during September several of them came into bloom. I raised thirty plants, and nearly half of them have bloomed, and the others look nicely. As this is better than the writer of the prize essay on *Gloxinias* said we ought to expect, I thought, perhaps, you would like to know of it.

Mrs. G. B., Camden, Me.

SHORT NOTES.

Fay's Prolific Currant.—GEO. S. JOSSELYN, of Fredonia, N. Y., who purchased the original stock of this Currant, with the privilege of propagating it, informs us that he has paid the heirs of the originator over \$22,000 as their share of the profits. It is truly a "prolific" variety.

The Botan and Ogden varieties of Japan Plum are reported to have sustained uninjured a temperature of 26° below zero, in Northern Indiana, and in Illinois 31° below. Under the same tests the Kelsey was killed to the ground.

Professor CLAYPOLE, of Buchtel College, Ohio, makes the statement that the English Walnut is not hardy, and that the "trees have not yet fruited in this country." Quite a number of English Walnut trees in different parts of this city have fruited for several years. We know of some that have been fruiting for fifteen or twenty years. The trees are hardy in Western New York, and quite regular and good bearers. In an article in this MAGAZINE in 1880, page 39, we made the following statement: "There are a number of trees in different parts of this city that have, for years, each borne bushels of nuts; and occasionally we hear of a tree, here and there, in different parts of this and adjoining counties. A tree two or three years old, transplanted from the nursery grounds, will bear in five to eight years." We had supposed it was now well understood that there were many localities in this country, besides California, where the English Walnut will flourish.

The Bennett Rose in the forcing house is said to be peculiarly infested with red spider, and the leaves subject to what is called black spot.

RESTORING BRANCHES TO TREES.

It is a vexatious thing to find, in a handsome lawn, some tree or shrub disfigured by the breaking of a branch; a thing that often occurs in winter time from weight of snow, or bovine visits, or other causes. An ingenious gardener will find means of restoring the balance by bending some of the remaining branches when they are moist and warm and pliant, and securing them against displace-

ment by wind by strings, or by pointed braces between one branch and another. These will not be conspicuous, and their points penetrating the bark, will retain their places through the most violent storms, if there is resistance enough between the two branches so separated. This method is very applicable to fruit trees with crowding tops. Sometimes it will require a year or two of growth to fill the gap, and if strings are used they must not be passed all around any shoot, or the constriction will injure it. Where the roots of a woody plant are sound, it is much better to repair injury in such a way, and by judicious pruning, than to plant a young substitute which will have no luxuriance of growth very soon. Luxuriance is the prime element of beauty in a tree, just as it is in the *cheveleure* of the head. The French apply the same name to both. W.

A TRICK OF THE TRADE.

The wily tree dealer who sells blue Roses, curculio-proof Plums, Strawberries as large as Red Astrachan Apples, and the many other inventions of his fertile brain, must look with admiration at the progress which many of the plant and seed dealers are making in his direction. That some one, without reputation, should try to gull the public with an advertisement of "the beautiful and fragrant Cinnamon vine," displaying an elaborate cut for the purpose, would scarcely deserve notice, although the said Cinnamon vine is nothing more nor less than the Chinese Yam, introduced into the country twenty-five years ago. The obscurity of the advertiser would naturally make people shy of him; but when some of our leading and well known firms stoop to the same practice, it is, to say the least, degrading an honorable trade. A late advertisement displays an engraving of a large three-story house, the face of which, up to the roof, is covered with a vine literally clothed with large white flowers, and in the sky is the full moon, of which each of the flowers is supposed to be a smaller representative. This plant is advertised as the Moon flower, without any other name being given. It is nothing more nor less than the well known *Ipomœa Bona Nox*.

In one of the most widely circulated magazines of this month appears an elab-

orate engraving of a landscape with some Lilies in the foreground, and this plant is heralded as the "Beautiful Coral Lily of Siberia," with some very pathetic nonsense of its cheering the exile on his sad journey. No other name is given, but it is simply *Lilium tenuifolium*. This style of advertising we can characterize fitly with no other name than trickery. Though the articles themselves may be good, the public are deceived by trumped up names, and are led to purchase what they may, perhaps, already have. Though the last two cases mentioned are by well known plant dealers, the practice is none the less reprehensible, and if the trade is expected to maintain the high standard of honor that has heretofore attached to it, such deceptive advertising must be shunned and condemned by all its members.

PLANT NOTES.

Among the satisfactory plants for the south-western country, where a long continued drouth during summer is the rule, not the exception, may be mentioned the *Torenia Fournieri*. Plant it in partial shade, or in full sun, and water plentifully. The number of flowers one of these little plants will produce in a season is wonderful. In a measure it will take the place of the Pansy, the plants of which do well only in spring and fall and are difficult to keep during the summer in this country.

Florists are not giving the single Dahlias the attention they deserve; some are dropping them from their lists. For corsage bunches in late fall, they are in great demand in many places, and very satisfactory both to the florist and purchaser. A cluster of the yellow, red or white make elegant corsage bunches. It is true they interfere with the sale of Roses,

and are cheaper, but I have noticed that many times the increased demands more than compensate.

LEVANT COLE.

GOOD RESULTS FROM SEEDS.

I take the liberty to express to you my appreciation of the seeds sent me in February, and also to tell you of what I think remarkable results obtained from your Early Scarlet Globe Radish. I planted the seed February 14th, in the open ground. When up they received only ordinary care, unless five or six waterings be considered extra. March 7th, three weeks from planting, I pulled eighteen fine Radishes from two rows, each ten feet long, and the balance, with the exception of a dozen roots, were of sufficient size to be used, as they were, within the next ten days. Is not this pretty good, all things considered? Everything else is doing well, especially the Early Jersey Wakefield Cabbage.

E. W. D., *Tallahassee, Fla.*

APRIL WORK.

Seed sowing of nearly all kinds will be in order this month, including the seeding of lawns. The soil should not be worked while wet, but as soon as the frost is out, and it is sufficiently dry, ground intended for lawns should receive prompt attention. Grass seed will germinate and the grass grows best before the hottest weather comes.

WHY WOMAN BLUSHES.

When man, in loneliness reposing,
Awoke from that mysterious nap,
And saw, with wondrous ease reclining,
His gentle Eve in Eden's lap,
In eager haste to greet the fair,
And all his heart's warm wishes speak,
He crushed a Rose upon her cheek
That left its tint forever there.

BURGESS TRUESDELL.



OUR YOUNG PEOPLE.

"ANOTHER MAN'S TOOL."

IN TWO CHAPTERS.—CHAPTER II.

Stunned as by a blow, Lewis was at first unable to move. Had the little word "*Go!*" which came with such force from Mr. Kemp's lips, been a leaden missive, tearing its way through his flesh, he could not have felt more deathly. But Mr. Kemp's still outstretched arm, indicating the door for his immediate exit, rallied him sufficiently to enable him to get out of the sight of this worthy man whom he had learned to admire and respect, and whose confidence and personal regard he had hoped to win by faithful service.

Upon reaching home he staggered into the doorway, pale and speechless, and sank into a seat, like one who had received his death-blow. So long had he repressed his fears and anxieties about his work, that now, when his frightened mother pressed him with anxious queries, his pent-up feelings found expression in the reckless words of despair.

"I am ruined," said he, "ruined, ruined, and I cannot, cannot bear it." Then, by degrees, he disburdened his mind of the whole matter, not sparing blame to himself while telling how he had allowed Radnor to deceive Mr. Kemp about his own qualifications.

"But, oh, I did not want to do it," he said, "it was only thoughts of my poor sister that kept me from tearing the letter up and quitting the place. I can see plainly enough now that, while I thought I was faithfully serving Mr. Kemp, I was working in the sneaking, ignominious capacity of '*another man's tool*!' In his eagerness to increase his own sales by lessening those of Mr. Kemp, he has recklessly sacrificed *me*, as though I were of no more account than a worm under his foot. I was already punished for my deception a thousand times over by the failure of my work before this disgrace came upon me. O, I wish I could die!" And he threw himself on his face on the lounge and wept—completely unmanned and broken down.

It was of no use that his sister tearfully pleaded, "Don't, don't, Lewy; it will all come out right yet—it must." He could not be comforted. As for Mrs. Austin, she was not only troubled and distressed, but when she reflected upon Radnor's scheming, Mr. Kemp's loss and Lewis' forfeited reputation, she was appalled at the situation.

She had long believed that there is an active principle of divine justice as all-pervading as the atmosphere, and that special wrongs are sure to be righted for all who exercise a prayerful faith. Aside from this, her only resource in times of trouble was to send for her good rector, Mr. Moore, for counsel. This she now did, and Lewis braced himself up for the interview. Upon that gentleman's arrival, the whole affair was recounted from the morning Radnor showed the advertisement to the time of his discharge.

Mr. Moore listened attentively to the end, and then, while admitting the grave mistake Lewis had made, assured him of his entire confidence in his integrity in such comforting words as soothed, somewhat, his highly-wrought feelings. Suddenly Lewis dashed out of the room and returned with the three months' wages received from Mr. Kemp, begging Mr. Moore to return the money for him, saying:

"I will never use a penny of it, never; not even for my sister. How could any good come to her from money earned as this was? O, Mr. Moore, this part of it adds to the bitterness of it all." And again he broke down.

Poor Lewis, who had always been so brave and manly!

Mr. Moore was keenly touched by this complication of trouble. "I did not know," said he, "that any operation for the benefit of your sister was possible. It was certainly a mistake to have kept it from me." Then, rising to go, he added, "I must take a little time to consider

how best to act in this case so as to insure the vindication of your character." With his hand on the money, he glanced askance at Mrs. Austin, who answered quickly:

"Take it, by all means; Lewis is right. Though but small reparation for Mr. Kemp's loss, it is all we can make now."

When Mr. Moore reached home he sought an immediate interview with his wife, and began: "My dear, I want you to assist my memory in an important case on hand. Where were we, last winter, when some one remarked that Mr. Kemp would have no Fuchsias this spring? I've not thought of it since; but remember thinking it strange at the time, because he had advertised a full stock for the spring trade."

"We were at your pet institution—the *Boys' Reformatory*. You and the Superintendent were making plans for embellishing the grounds, this spring, when the former spoke of having consulted Mr. Radnor as to the probability of your being able to secure the needed supply of shrubs and plants without having to send away for them, and he added, that in reference to Fuchsias, Mr. Radnor had said that he should have only enough to supply the home retail demand, as Mr. Kemp would have none at all fit for market."

"My dear, that was in January; how could he have known? Your clear memory on this point is about to serve a most excellent purpose. On this statement hangs the happiness and welfare of a worthy family. Ask no questions, please; you shall know all in time. Now, I must go to the *Reformatory* to see Mr. Burgess, and on my return shall call on Mr. Kemp. In the meantime, you are quite safe in thanking the Lord in advance for having been able to give me this clue."

Twenty-four hours later, three men—we might say gentlemen, only that the terms, gentleman and lady, are at present very justly resting under a social ban on account of their too promiscuous use, hence we are proud to say that three *men*, true and noble men—sought the presence of Radnor, asking for a private interview. Radnor's face blanched as he recognized the trio, knowing full well they had not met there by accident. But quickly regaining assurance, he received

them in his usual bland fashion, while Mr. Moore opened the interview.

"We are here," said he, "because I, personally, wish to learn exactly to what extent young Austin is responsible for his recent failure to fulfill a contract; this failure having caused his discharge and consequent disgrace."

"Really, Mr. Moore, I don't see how I can enlighten you any under the circumstances, Austin never having handled Fuchsias for me at all. I object, most decidedly, to being held accountable for his assumed knowledge or failures. Mr. Kemp knows I did not recommend him for any branch of the business, and I have already said to him all I have to say on the subject."

"You may find it desirable to say something further," returned Mr. Moore, "if by so doing you can clear yourself of a serious imputation." Then, adroitly drawing him into a trap of words, he inquired, "Did you not see the condition of Mr. Kemp's stock during the winter, thus giving you an opportunity of offering a friendly word of advice from your large experience?"

"No, I did not. I never saw his Fuchsias."

"*You never saw them.* Very well; that point is settled. Then how came you to tell Mr. Burgess, last January, that Mr. Kemp would have no Fuchsias in condition for market this spring? How could you have known anything about it?"

"Mr. Burgess, indeed! and is this what *you* are here for? You must be mistaken! How could I have told you such a thing?"

"I can't say, unless you had the knowledge which you were sure would make the statement come true. You gave that as a reason, you remember, why you could not wholesale me any of your own stock."

"I remember nothing of the kind! This whole thing is a set up job to ruin me and my business. You'll excuse me from listening any longer to your malicious imputations," and he started for the door. But Mr. Kemp sprang forward and set his back against it, exclaiming:

"I choose you shall listen a moment longer, while I have *my* say. You are fairly caught in your own words, and knowing what else we do, we all concur in believing every word of Austin's state-

ment. In the first place, you forced that advertisement upon his notice. You forced him, against his will, to apply for the situation by deceptive promises of instruction. The instruction was intended to dwarf and ruin, if not totally kill, my plants. You wrote a letter that you knew would deceive me. You expended much thought and a deal of devilry in plotting me harm for the sake of a little paltry gain to yourself, with no regard to the atrocious wrong you were doing a fatherless youth, who was honestly and proudly trying to make a good record for himself. Now you may go—we are done with you. As for Austin, we shall see that all this misfortune is more than made up to him."

The three men then hastened to Mrs. Austin's to report their interview with Radnor, and to assure Lewis of their renewed confidence in himself. Such news—brought by three such men, of whom the injured man was one—fairly flooded their little home with happiness. With Lewis, the revulsion of feeling was so great he was hard beset to control his emotion.

The call was prolonged until an early day had been named for securing the surgical skill that had long been coveted

for the sufferer. Before leaving, Mr. Kemp grasped Lewis by the hand, saying,

"I wish you could overlook my severe dismissal of you from my premises so far as to consent to engage once more in my service."

"I've not had one unkind thought of you, Mr. Kemp, for had I been guilty of all you supposed, you could not have shown me more severity than I deserved. I shall be proud and happy to return to your service."

Mr. Moore lingered behind the others to leave with Mrs. Austin the money that Mr. Kemp had refused to accept. Then, rushing from the avalanche of gratitude that threatened to overwhelm him, he declared he must hasten to the relief of a little woman who might justly begin to suspect his sanity, if he did not soon make a satisfactory report of the last twenty-four hours. When he had gone, Lewis sat quite silently for a few moments, then rubbed his head and his eyes, and got up and shook himself, saying:

"It half seems as though I'd had an ugly dream, and this is the awakening. But no, it is only too real. O, how I *have* suffered for that one mistake. I wonder how Radnor feels."

MARIA BARRETT BUTLER.

THE OSTRICH.

There is but one known species of the Ostrich, that of the sandy deserts of Africa and Arabia; and over those dry, sandy plains these birds run with great speed, for they travel at the rate of sixty miles an hour. From them the soft, beautiful plumes are obtained which are so often used in a variety of ways for the toilet, but these long, soft feathers are formed only on the wings and tail. The principal part of the plumage of the male is of a glossy black, while that of the female is gray, with a mixture of white. Therefore the gay coloring of the feathers, which we often see, is not natural, but given them by dipping them in various dyes. Their necks are long, the head small, the legs are large and exceedingly strong. The wings, which are too short for use in flying, are a help to them when running. The legs are almost entirely destitute of feathers, and the necks and heads are so scantily covered that the

skin shows plainly through them. The foot consists of two strong toes; the inner one is the larger and has a claw, and so very powerful is a stroke from the bird if it is enraged, that it will kill almost instantly.

The Ostrich is the largest of known birds, weighing between two and three hundred pounds, and of such great strength that one can easily run carrying a man on his back. They merely scoop a hole in the sand for a nest, and in this the eggs are laid. They are very large, a single egg weighing nearly three pounds, and are used as food by travelers as well as the natives; the manner of cooking them is to stand them on end over a fire, making a hole in the top of the shell, to stir the contents from time to time while cooking; the flesh of a young bird is said to be palatable.

They fear man, therefore, one method of hunting them is for the hunter to dress himself in the skin of one of the birds,



and thus approach within arrow-shot, and kill them with poisoned arrows; and they are also hunted on horseback. Ostrich farming is engaged in, in some parts of France, for the sake of obtaining a greater supply of feathers, and the birds are bought and sold for high prices, a young bird bringing as much as fifty dollars. The feathers are also costly, the longer the plume the higher its value.

M. E. WHITEMORE.

EDITOR'S MISCELLANY.

THE MARGIN OF PROFIT.

From the fullest investigation which I have been able to make, I have become more and more convinced that ten per cent. is the maximum margin of

profit on all production in this country, and that even a less proportion of the product of a normal year is all that can be set aside for the maintenance or increase of capital; conversely, that more than ninety per cent. of each year's product is consumed by those

who are engaged in its production, as working people in the sense in which that term is commonly used. Of the ten per cent. or less which is or may be saved and added to capital, a very large share will become the property of those who are themselves working people in the strictest sense—another large share will be saved by persons of moderate means, while the share of the rich will be but the lesser part of the whole sum of profits. This view is sustained by the very small margin of profit which now suffices to draw capital into any and all the principal arts which can be analyzed.

EDWARD ATKINSON, in the *April Century*.

THE AUDUBON MAGAZINE.

This is a handsomely printed twenty-four page monthly, published in the interests of the Audubon Society for the Protection of Birds, by the *Forest and Stream* Publishing Company, of New York. The annual subscription price is fifty cents. While directly concerned with the attainment of the specific purpose for which the Audubon Society was established, the magazine will deal with bird life and other natural history, and discuss the general economic problems of animal life in relation to agriculture and human welfare. Competent ornithologists are associated with the editor in the work, and every effort will be made to place before its readers the results of the most reliable observations on birds, and the nature of their services to man. But the *Magazine* will not confine itself to birds alone. It will take a far wider range, and will discuss many other interesting points in animated nature. The *Magazine* should have the support of all interested in the welfare of our birds.

REPORTS, PROCEEDINGS, &C.

We acknowledge the receipt of the Fifth Annual Report of the New York Experiment Station, for the year 1886, a volume of four hundred pages. The value of these reports increase with the age of the Station, and the agricultural community have much to hope for in the continued and systematic observations and experiments of the trained scientific corps, of whom Dr. Sturtevant is the leader. We shall have frequent occasion to consult the present report and lay before our readers some of the observations and conclusions of the past year.

The Transactions of the Massachusetts Horticultural Society for the year 1886, Part I, is, as usual, a volume of interest and instruction. This old Society appears to show no diminution of zeal with years, but, on the contrary, is probably more active now than ever before. Its record is a grand one, and in the future its example will, no doubt, encourage and enlighten horticulturists not only in Massachusetts but throughout the whole country.

The Maine State Pomological Society has sent its Transactions for the year 1885, including the Proceedings of the winter meeting, held February 17th and 18th, 1886. The horticulturists of Maine are awake and working. They have a very confident opinion, and it is apparently well founded, that they can raise better Apples than any other State. In a paper by Lyman F. Abbott, on "The Future of Orcharding in Maine," occurs the following: "A reaction is coming, when business will revive, and the Maine orchardist will be happy. He can grow the best Apples in the world, and he knows it. That he will always find a market for them at remunerative prices, the horizon of the future glows with roseeate hues of promise. While the wheels of our manufac-

turing interests are in motion, with their goods finding their way to the homes of millions of consumers, making a demand and a consequent call for labor to produce these goods, that commodity we call 'money' will change hands and land a fair share in the Maine Apple growers' pocket."

That horticulture is to thrive in the great and growing State of Colorado, is evident from the receipt of three volumes of reports of the State Horticultural Society from the year 1882 to 1886, inclusive. Although irrigation is one of the necessities of cultivation in Colorado, yet, with it, it appears that that State is able to raise all the fruit required within its borders and some to spare.

The valuable "Proceedings" have been received of the New Jersey State Horticultural Society, and the societies of Western New York, Portage County, Ohio, and Columbus, Ohio. These are all progressive bodies that are doing much to promote gardening and fruit-growing.

HARPER'S MAGAZINE.

In view of the present lively interest in Russia, the readers of the April number of *Harper's Magazine* will enjoy the attractive article by Ralph Meeker, entitled "through the Caucasus." Mr. Meeker sketches a visit made to the most unfamiliar province in that anomalous realm during the excitement of the late war between Russia and Turkey. He claims that "no country having railways and telegraphs is so little known as Russia. Every type of civilization and every grade of barbarism are found within its boundaries." The illustrations are by the author's fellow-traveler, F. D. Millet, and are capitally done. The conclusion of the article will appear in the May number.

THE ECLECTIC MAGAZINE.

For selections of the best literature of the day for thinking people, we like to call attention occasionally to the above magazine, published by E. R. Pelton, 25 Bond Street, New York. The very cream of the writings of English and American authors of the current times comes to the surface in these pages. It has a separate field from that of our handsomely illustrated monthlies, and its articles are very satisfying to an active, healthy mind that seeks intercourse with the best minds of our age.

MICROSCOPICAL JOURNAL.

The *American Microscopical Journal* comes out from month to month filled with matter that is of great interest to microscopists and biologists. At the low price, one dollar a year, at which this journal is published, it should receive the names of every one in the country interested in microscopical studies in relation to the natural sciences. The address of the Business Manager is P. O. Box 630, Washington, D. C., to whom all subscriptions and letters of inquiry should be sent.

HOUSE BUILDING.

The Cottage Design supplied this month by D. S. Hopkins, Architect, of Grand Rapids, Michigan, is one that will commend itself to many who wish to build a neat house at a moderate cost. Full working drawings, details and specifications will be supplied by Mr. Hopkins at a very reasonable cost, which may be learned by addressing him as mentioned above, and enclosing stamp for reply.